OpenWMS Installation and Configuration Manual

Workflow Management System for analog and digital objects

Version 2.0 (Beta)

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OpenWMS Installation and Configuration Manual

Workflow Management System for analog and digital objects

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Table of Contents

I. Introduction 5

II. Using this Manual 8

Section 2: Installing and Configuring OpenWMS 10

A. Installation of OpenWMS 10

B. Configuring OpenWMS 10

Step 1: Manage User Account 10

Step 2: Digital Workflow Management System 13

1) Metadata cataloging (Figures 2.1.1 to 2.1.22) 13

1.1) Schema Builder 13

1.2) Type of Resource or Source Type 17

1.3) Controlled Vocabularies 21

1.4) Required Elements 21

1.5) System Supplied Values 23

2) Digital File Handling 23

3) Structure Map 26

4) Mapping 40

5) Batch Import 40

6) Export 40

7) Audit 40

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I. Introduction

The OpenWMS is a platform-independent, open source, web-accessible system that can be used as a standalone application or integrated with other repository architectures by a wide range of organizations. It provides a complete metadata creation system for analog and digital materials, with services to ingest objects and metadata into a Fedora repository and to export these objects and metadata, individually and in bulk in METS/XML Wrapper.

The cataloging module in OpenWMS is based on the Library of Congress version of OpenMIC. The cataloging module features a METS data architecture which can be used in any METS-based or METS-compliant environment. It uses MODS as an underlying metadata schema for descriptive MD, NISO/AES standard for technical MD and PREMIS for source MD and rights MD. It outputs an XML wrapper for the METS components as a single object.

The data model is primarily an event-based data model, intended to document what happens to a resource at a specific time and place. Preservation and condition events, provenance events, rights events, and descriptive events document what happens to a resource throughout its lifecycle. Details of the events can include associated entities (such as an exhibit curator) and associated objects (such as an exhibit catalog).

This is a core application to ingest digital objects into the Institutional Fedora Repository (RUcore) developed at the Rutgers University Libraries.

Major Features :

Full METS support
The OpenWMS features a METS data architecture which can be used in any METS-based or METS-compliant environment. It uses MODS as an underlying metadata schema for descriptive metadata, NISO/AES standard for technical metadata and PREMIS for source and rights metadata. It outputs an XML wrapper for the METS components as a single object for export.

Event-based data model
The OpenWMS data model is primarily an event-based data model, intended to document what happens to a resource at a specific time and place. Preservation and condition events, provenance events, rights events, and descriptive events document what happens to a resource throughout its lifecycle. Details of events can include associated entities (such as an exhibit curator) and associated objects (such as an exhibit catalog).

Resource management for analog and digital information formats
The bibliographic utility in OpenWMS (OpenMIC) employs the source object, and the entity that is

described in the METS source Source MD (source metadata), as the first generation of information controlled by the metadata-creating organization. This is often an analog object a photograph, a slide image of an art work, or a print manuscript. Technical details of the digital object are captured in the METS TechMD (technical metadata) area of the Administrative metadata section, and successive modifications to the digital object are tracked in the bibliographic utility through the DigiProvMD (digital provenance metadata) area.

Import and Export

The bibliographic utility in OpenWMS supports batch import of metadata in XML and TXT format at present. This is easily expandable to other formats. It also supports batch export of metadata in METS and TXT format at present. This is also easily expandable to other formats.

Customization capabilities

- Utility Configuration

  The configuration module allows an organization to configure the metadata schema, set up required metadata element, setup system policies, and file handling policies according to their specific needs.

- Templates

  Templates enable the user to increase both efficiency and accuracy when applying metadata to multiple objects in a collection. Templates allow an organization to select mandatory data elements and to automatically supply default values for elements in the metadata. Templates can be modified and proliferated as warranted for a digital project.

- Vocabularies

  New values can be added to existing vocabulary lists, and new vocabulary lists themselves can be established in the bibliographic utility. Access to this feature is configurable by the organization in order to limit or expand authorization to control vocabularies based on the organization's local needs and staff resources.

Digital File Handling

The OpenWMS supports digital files in all formats. It is delivered with Image Magic, an open source software, to create presentation formats (derivative images) from tiff images to jpeg and pdf formats. The organizations can configure the archival file types and presentation file types according to their specific needs.

Operating System or Platform Dependencies
Solaris; Linux

Other Application Dependencies
MySQL 4.0 or above; PostgreSQL 6.0 or above;
PHP 4.0 or above ;
Image MagicK

PHP modules

--with-dom
--with-dom-exslt
--with-ldap (if ldap is used for authentication)
--with-mime-magic
--with-mysql (if using MySQL)
--with-pgsql (if using PostgreSQL)
--with-pear
--with-exslt
--enable-xslt

Installation
Approximately 45 minutes.

Sample Scenario(s) of Use:

Library or archive with a repository (e.g., DSpace repository, Fedora)

A library or archive that is using a repository architecture can use the bibliographic utility to create and manage metadata. The bibliographic records in the MySQL/PostgreSQL database can be exported as METS and converted to your repositories native schema using third-party tools or XSLT transformations provided by you.

Library or archive with no repository

A library or archive with no current repository architecture can use the bibliographic utility as a "placeholder" for a full repository. Resources can be cataloged in the bibliographic utility and the cataloging can be maintained indefinitely in the MySQL/PostgreSQL database component of the utility. A copy of the bibliographic records in the MySQL/PostgreSQL database can be exported as METS and made available to an XML search and retrieval facility, such as Lucene or Zebra.

II. Using this Manual

There are two sections in this manual.

Section 1 gives an overview diagram of the OpenWMS modules and brief description of each module.

Section 2 describes how to configure OpenWMS according to your organization policies.

Section 1: OpenWMS Overview Diagram

An overview diagram of the OpenWMS is shown in Figure 1.0. The OpenWMS software consists of several distinct modules, and some of the high level modules are shown here.

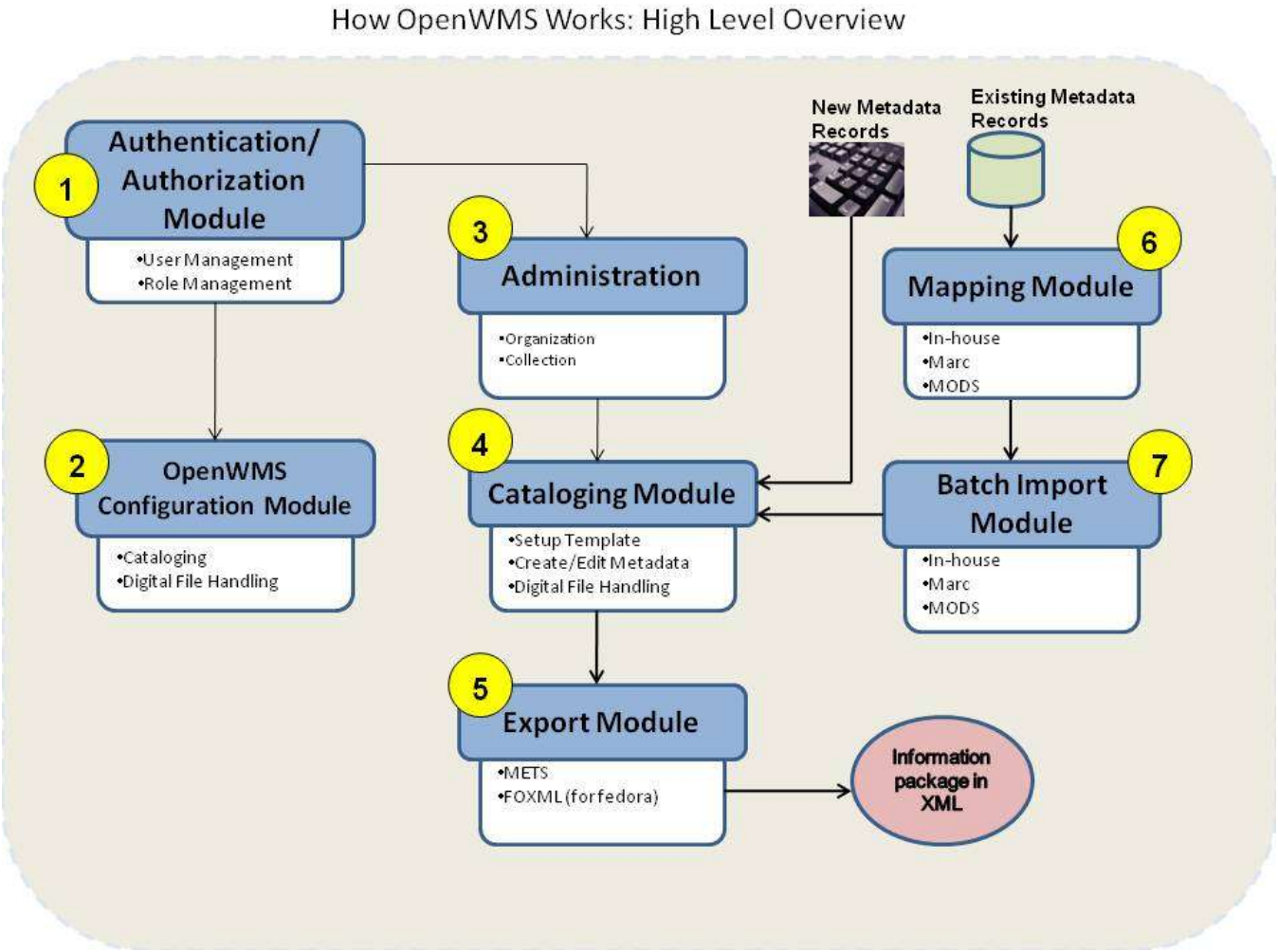


Figure 1.1: Overview diagram of the OpenWMS Modules

1. Authentication/Authorization module allows users to manage user accounts and the roles according to organization or collection policies.
2. Configuration module allows administrators to configure metadata cataloging form, required elements, and default values according to organization or collection policies.
3. Administration module allows administrators and/or OpenWMS users to manage organizations, collections, and to perform database cleanup.

4. Metadata and Digital objects module allows users to create, edit, or delete cataloging records, define required elements and create templates for a collection, map schemas, import, and export metadata.
5. Export module allows users to export metadata in METS XML, Marc XML, or MODS xml format.
6. Mapping module allows users to map organization's existing records to OpenWMS database.
7. Batch Import module allows users to batch load records from existing database.

Section 2: Installing and Configuring OpenWMS

A. Installation of OpenWMS

********* Important NOTE ********

Please do not attempt to make any changes to the database directly until you are familiar with the software and the database. If you make changes to the database or code, it will be difficult for us to provide technical support.

Please refer to the README.txt file which is included in the OpenWMS download package.
To download the package, go to:
http://rucore.libraries.rutgers.edu/open/dl/index.php?OpenWMS

After the installation of OpenWMS is completed, you may either start using the system as delivered or configure the system according to your organization policies.

If you are ready to use OpenWMS as delivered, proceed to create organization and collection before start creating metadata. Refer to the OpenWMS user manual.

http://rucore.libraries.rutgers.edu/open/projects/OpenWMS/OpenWMS-user-manual.pdf

B. Configuring OpenWMS

OpenWMS can be used as delivered or it can be configured according to the organization policies. After the software is installed, the administrator must create a super user account and perform some administrative tasks before using the system. The steps are explained below:

Step 1: Manage User Account (Figures 1.1.1 to 1.1.3)

The software is delivered with a default user name and password. As soon as the software is installed, the administrator should log in with the delivered user name and password and create a super user

account. Once the super user account is created, the delivered user name and password become invalid. Follow the instructions below to create a super user account.

a) Login with the default user name and password.
b) Select ***Manage User Account*** from the main menu.
c) Enter User information and click ***Submit***.
d) Next you need to assign super user role for this user. Select the user you have just created and click ***Assign Role(s).***
e) Select ***Yes*** to assign super user role and click ***Submit***.
f) Select ***Cancel*** to go to the OpenWMS initial screen.

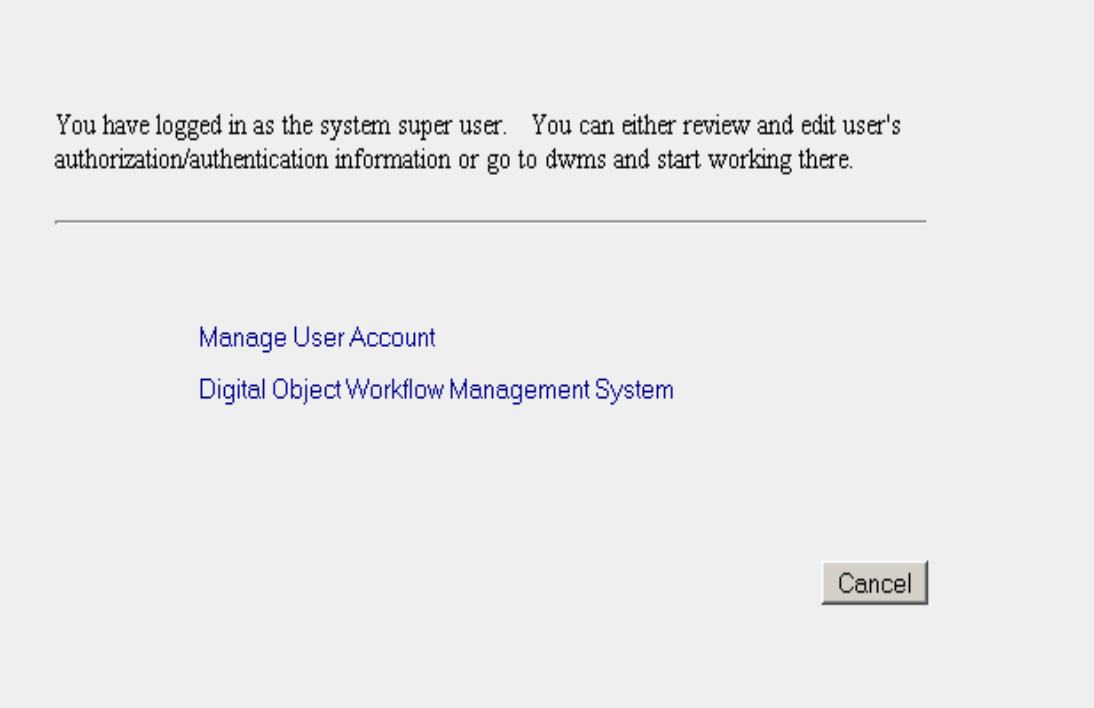

You have logged in as the system super user. You can either review and edit user's authorization/authentication information or go to dwms and start working there.
Manage User Account
Digital Object Workflow Management System
Cancel

Figure 2.1: OpenWMS initial screen

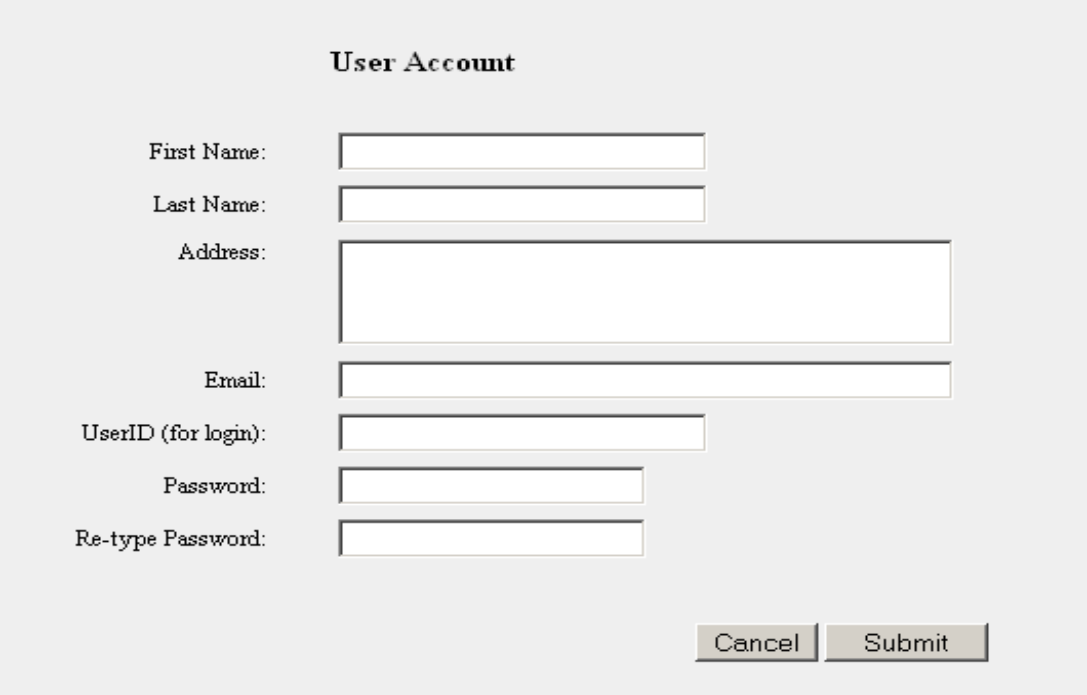


Figure 1.2: User account screen

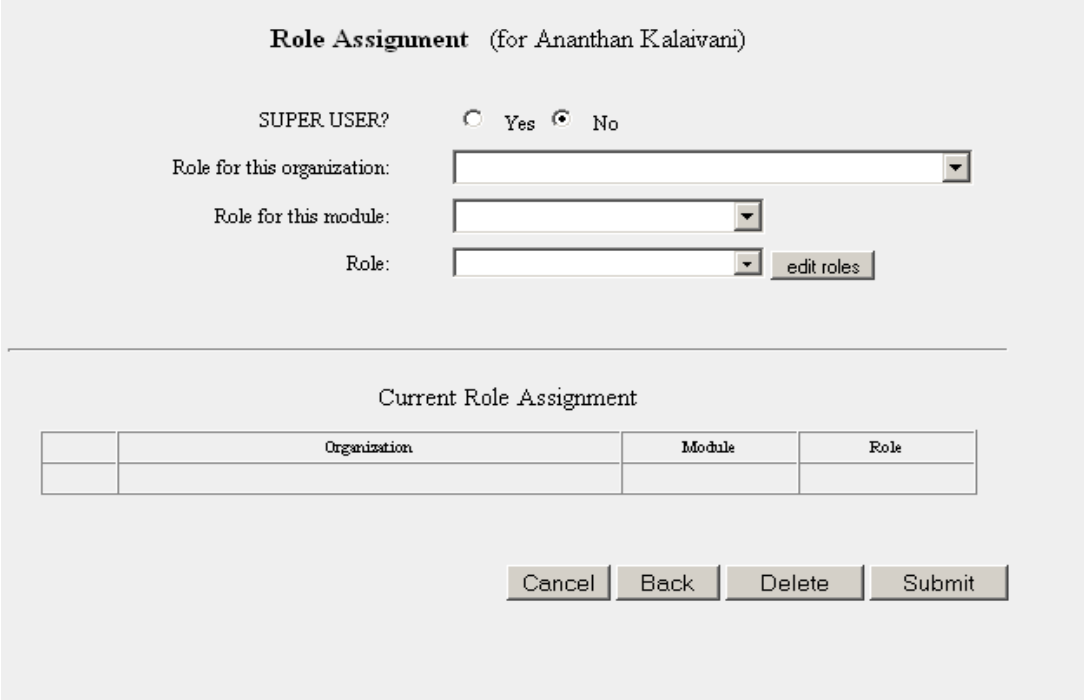


Figure 1.3: Role assignment screen

Step 2: Digital Workflow Management System

This step is optional. The configuration module allows organizations to select the elements to appear on the cataloging form and to set the system-wide required elements as well as system-supplied values according to the organization policies. Go through each of the configuration options and make appropriate selections according to your organization policies.

1) Metadata cataloging (Figures 2.1.1 to 2.1.22)

1.1) Schema Builder

The Schema Builder allows you to enable and disable elements and their subelements. Future releases will also allow you to Edit Properties and Add New Element. All the elements and subelements in OpenWMS are enabled by default with no system supplied values.

a) Select ***Digital Object Workflow Management System*** from the main menu.
b) Select ***Configuration***.
c) Select ***Metadata Cataloging***.
d) Select ***Schema Builder***. Refer to the data dictionary for element definitions.
e) Select ***Descriptive***. You will see all the top level elements in descriptive metadata section. If you click on the radio button, you will see the next level elements.
f) Select the element you want to disable and click ***Disable***. A red X indicates the element is disabled.
g) Follow steps (a) – (g) for every metadata section.
h) Click ***Exit*** to return to the configuration screen.

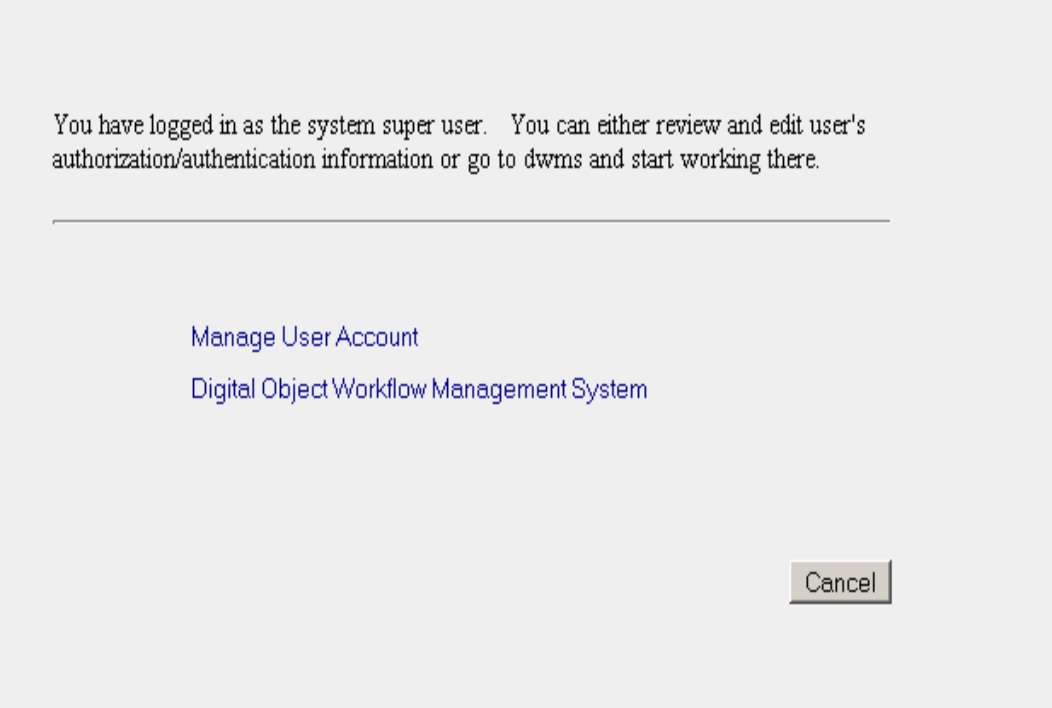

You have logged in as the system super user. You can either review and edit user's authorization/authentication information or go to dwms and start working there.
Manage User Account
Digital Object Workflow Management System
Cancel

Figure 2.1.1: OpenWMS main screen

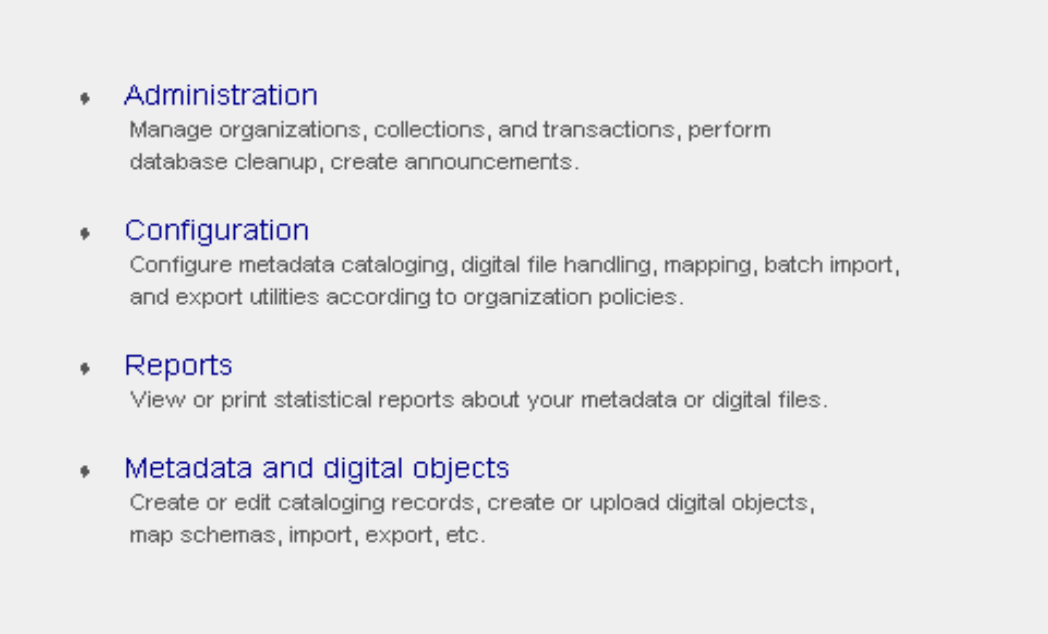

Administration
Manage organizations, collections, and transactions, perform database cleanup, create announcements.
Configuration
Configure metadata cataloging, digital file handling, mapping, batch import, and export utilities according to organization policies.
Reports
View or print statistical reports about your metadata or digital files.
Metadata and digital objects
Create or edit cataloging records, create or upload digital objects, map schemas, import, export, etc.

Figure 2.1.2: Digital Workflow Management System main screen

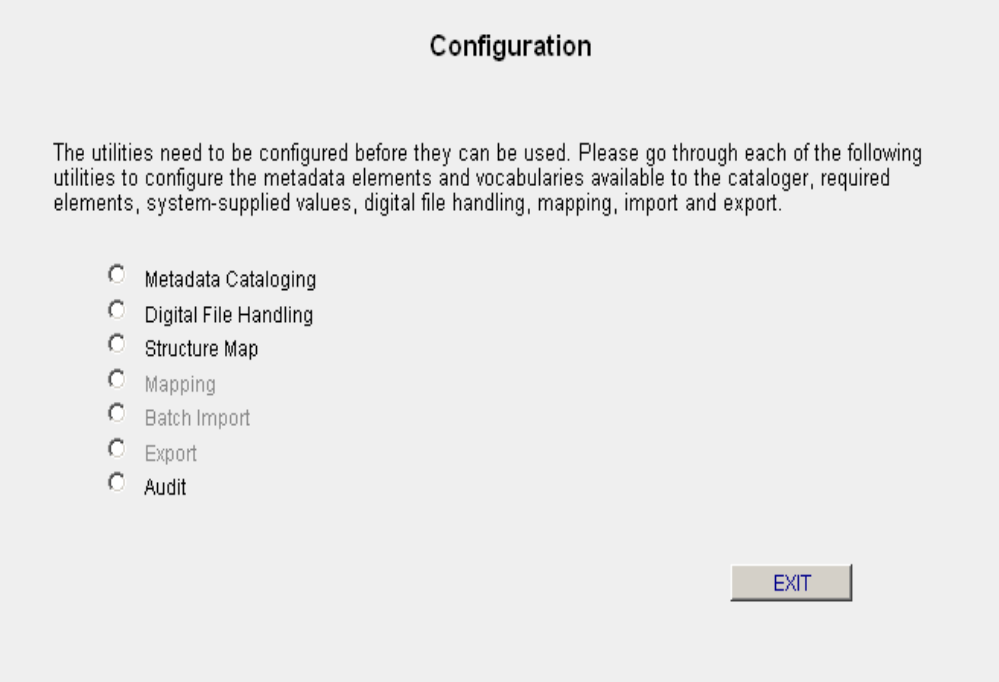

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT

Figure 2.1.3: Configuration main screen

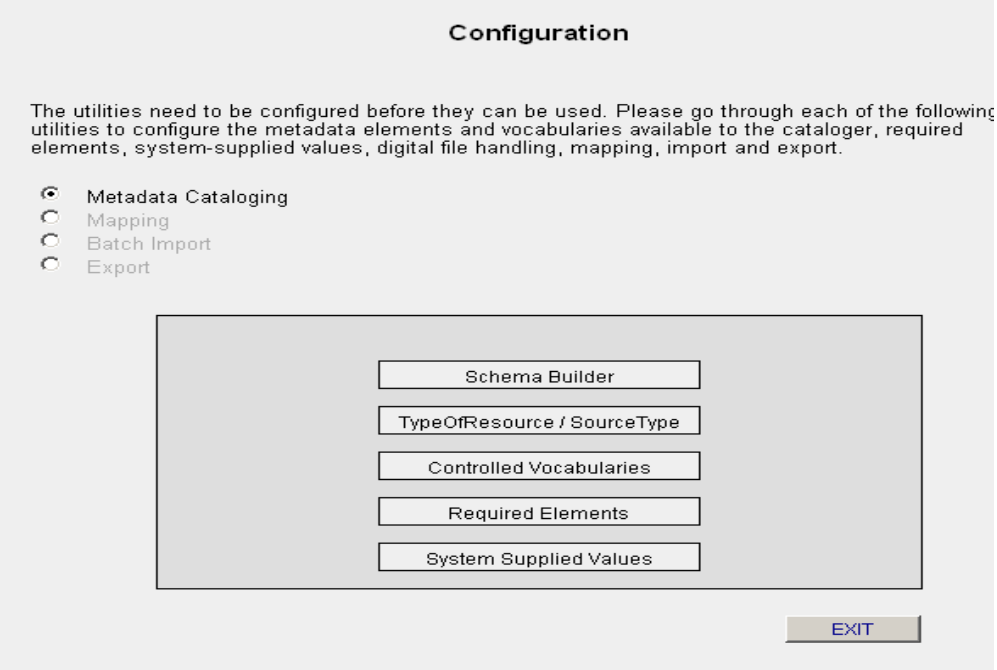

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Mapping
Batch Import
Export
Schema Builder
TypeOfResource / SourceType
Controlled Vocabularies
Required Elements
System Supplied Values
EXIT

Figure 2.1.4: Cataloging module configuration screen

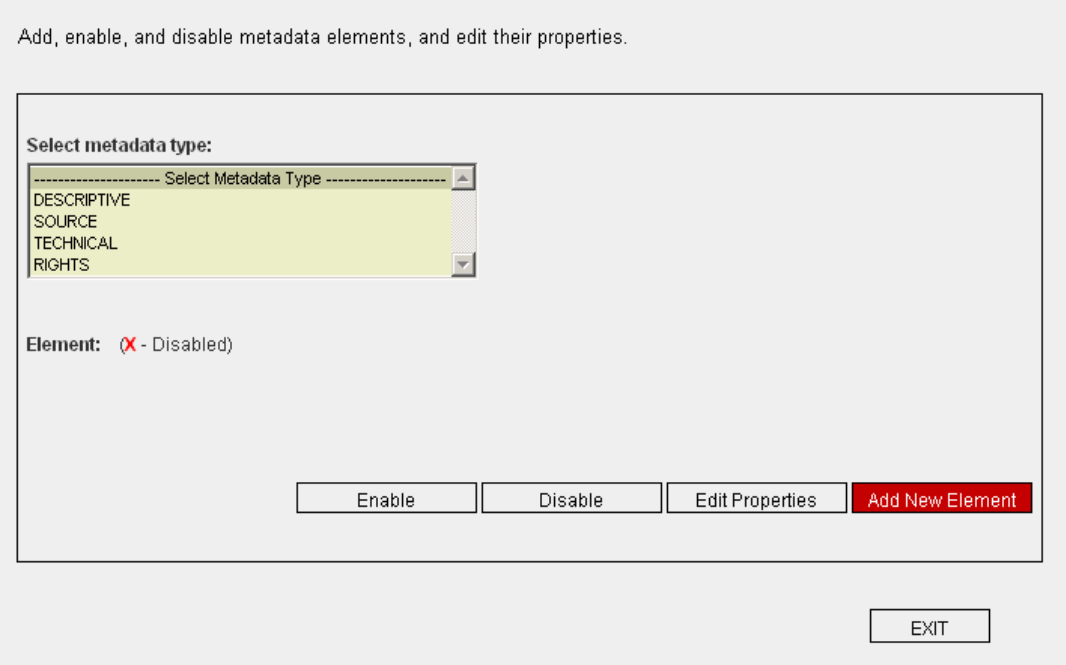


Figure 2.1.5: Metadata element configuration screen

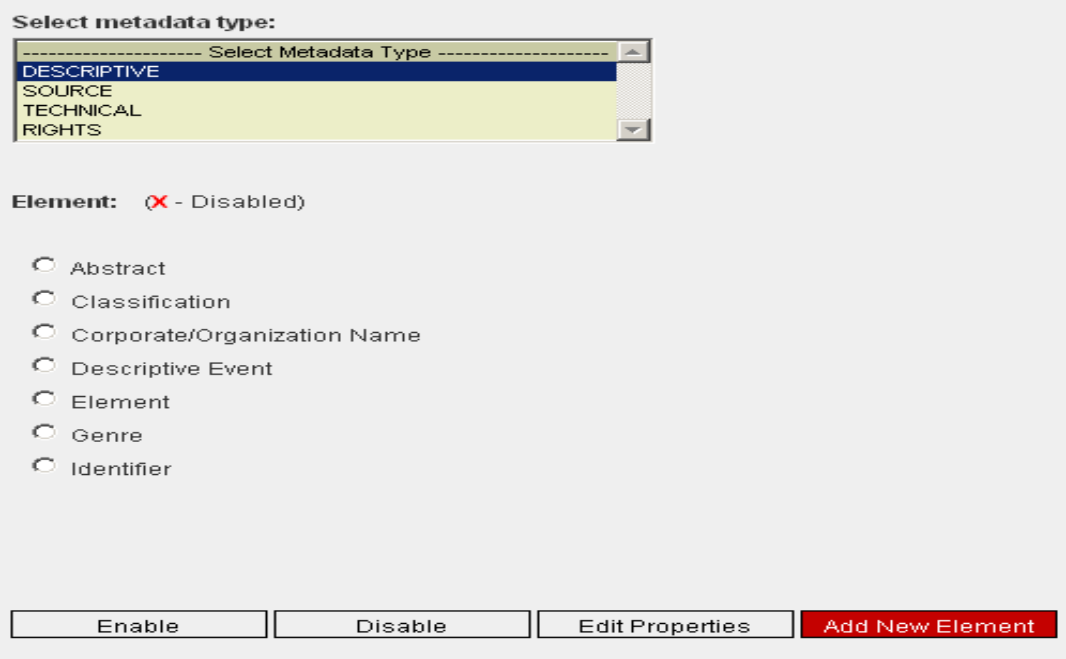


Figure 2.1.6: Descriptive metadata element configuration screen

1.2) Type of Resource or Source Type **(Figures 2.1.7 to 2.1.12)**

The data elements and vocabularies appearing on the metadata input form under Technical Metadata are determined by the value selected in the typeOfResource data element in Descriptive Metadata (labeled 'Type of Item' on the form). If your organization uses a different set of terms for typeOfResource than the default terms provided by the system, map your terms to the default types.

The data elements and vocabularies appearing on the metadata input form under Source Metadata are determined by the value selected in the sourceType element in Source Metadata. If your organization uses a different set of terms than the default terms provided by the system, map your terms to the default source types.

To configure Type of Resource: (figures 2.1.7 to 2.1.10)

a) Select ***Digital Object Workflow Management System*** from the main menu.
b) Select ***Configuration***.
c) Select ***Metadata Cataloging***.
d) Select ***TyoeOfResource/ SourceType.***
e) Select ***TypeOfResource***.
f) Select ***Organization***.
g) Select ***This organization has its own TypeOfResource terms***.
h) Enter your organization's TypeOfResource term one by one in the space provided on the left and map each term to the system supplied terms on the right. If some, but not all, of your terms match OpenWMS terms, map all your terms. If OpenWMS uses a terms your don't use and for which you have no equivalent, ignore it. See Figure 2.1.10. In this example, the organization has ignored 'Service,' as it doesn't use this term or any equivalent.
i) Click ***Submit***.
j) Click ***Exit*** to return to the configuration screen.

To configure Source Type: (figures 2.1.11 to 2.1.12)

a) Select ***Digital Object Workflow Management System*** from the main menu.
b) Select ***Configuration***.
c) Select ***Metadata Cataloging***.
d) Select ***TypeOfResource/SourceType***.
e) Select ***SourceType***.
f) Select ***Organization.***
g) Select ***This organization has its own SourceType terms***.
h) Enter your organization's Source type term one by one in the space provided on the left and map each term to the system supplied terms on the right. If some, but not all, of your terms match OpenWMS terms, map all your terms. If OpenWMS uses a terms your don't use and for which you have no equivalent, ignore it.

i) See Figure 2.1.10. In this example, the organization has ignored 'Service,' as it doesn't use this term or any equivalent.
j) Click ***Submit.***
k) Click ***Exit*** to return to the configuration screen.

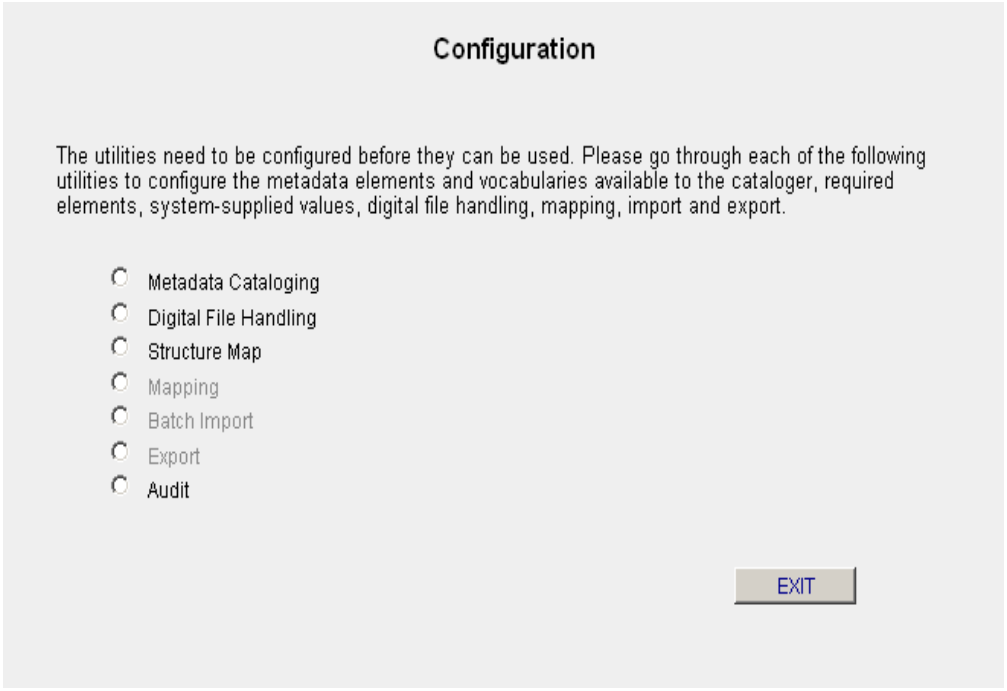

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT

Figure 2.1.7: Configuration main screen

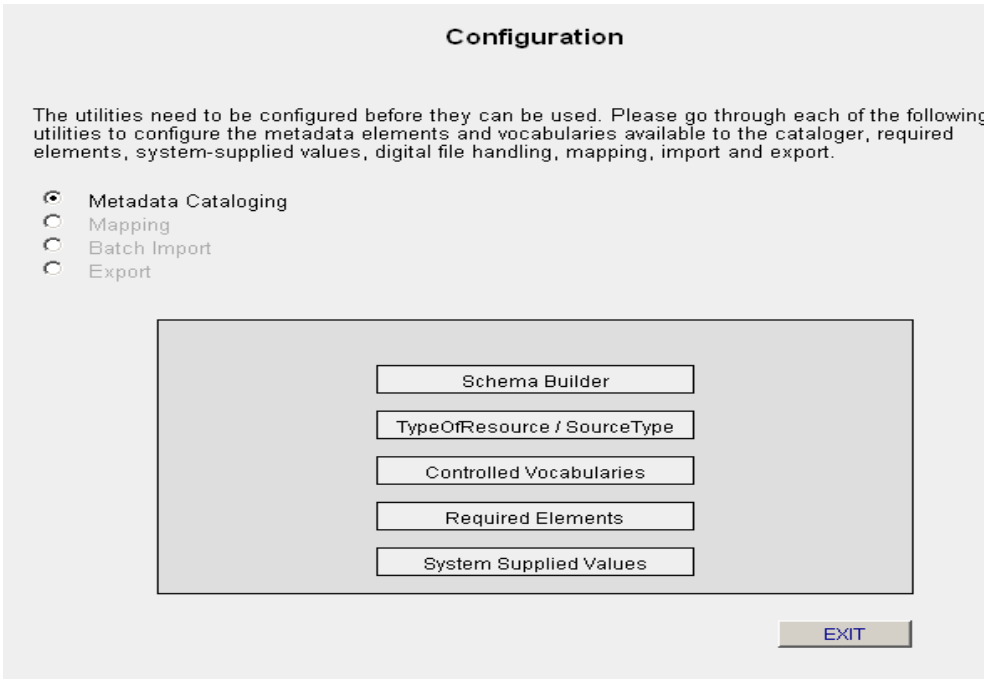

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Mapping
Batch Import
Export
Schema Builder
TypeOfResource / SourceType
Controlled Vocabularies
Required Elements
System Supplied Values
EXIT

Figure 2.1.8: Cataloging module configuration screen

TypeOfResource / SourceType
The data elements and vocabularies appearing on the metadata input form under Technical Metadata are determined by the value selected in the typeOfResource data element in Descriptive Metadata (labeled 'Type of Item' on the form). If your organization uses a different set of terms for typeOfResource than the default terms provided by the system, map your terms to the default types.
The data elements and vocabularies appearing on the metadata input form under Source Metadata are determined by the value selected in the sourceType data element in Source Metadata. If your organization uses a different set of terms than the default terms provided by the system, map your terms to the default types.
What would you like to configure? TypeOfResource
Default TypeOfResource:
Dataset
Event
InteractiveResource
MovingImage
PhysicalObject
Service
Software
Sound
StillImage
Text
Organization:
Option:
Use default TypeOfResource.
This organization has its own TypeOfResource terms.
EXIT

Figure 2.1.9: Type of Resource configuration screen 1

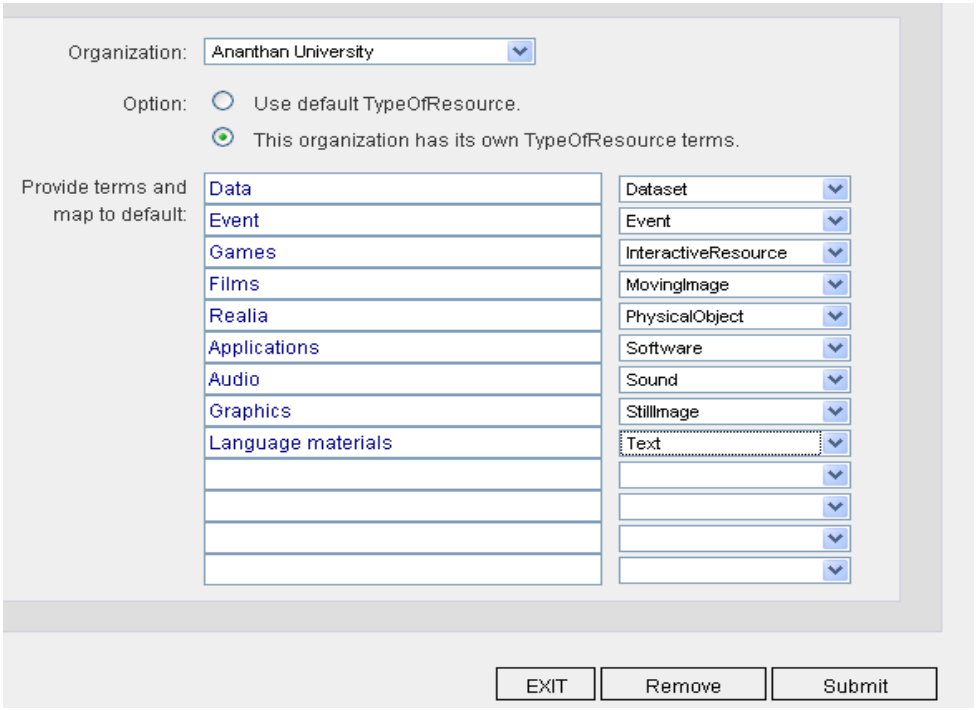
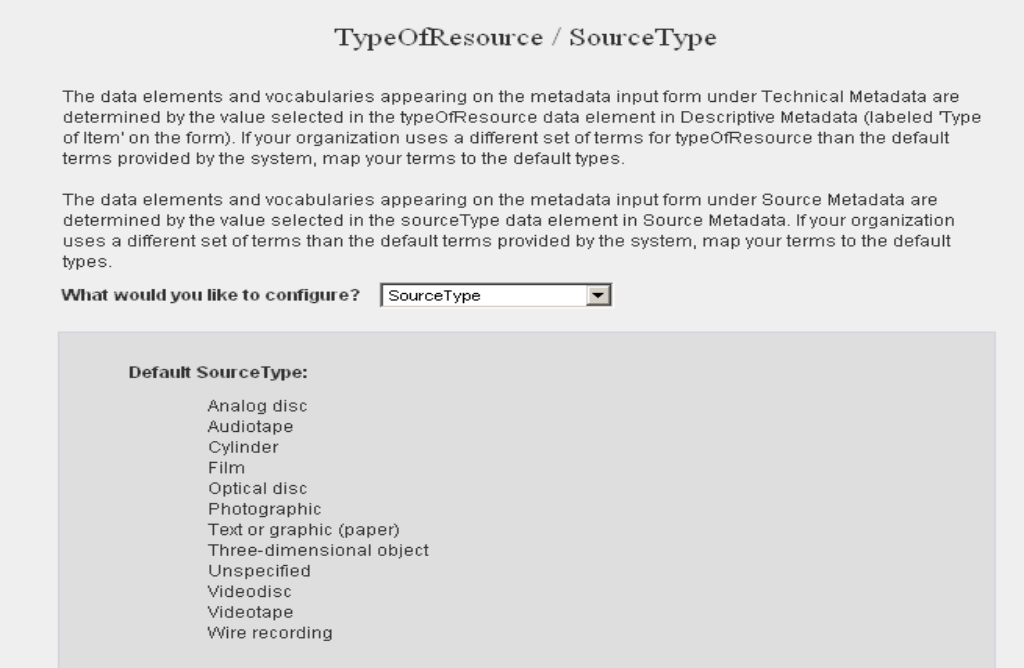


Figure 2.1.10: Type of Resource configuration screen 2


TypeOfResource / SourceType
The data elements and vocabularies appearing on the metadata input form under Technical Metadata are determined by the value selected in the typeOfResource data element in Descriptive Metadata (labeled 'Type of Item' on the form). If your organization uses a different set of terms for typeOfResource than the default terms provided by the system, map your terms to the default types.
The data elements and vocabularies appearing on the metadata input form under Source Metadata are determined by the value selected in the sourceType data element in Source Metadata. If your organization uses a different set of terms than the default terms provided by the system, map your terms to the default types.
What would you like to configure?
SourceType
Default SourceType:
Analog disc
Audiotape
Cylinder
Film
Optical disc
Photographic
Text or graphic (paper)
Three-dimensional object
Unspecified
Videodisc
Videotape
Wire recording
Figure 2.1.11: Source Type configuration screen 1

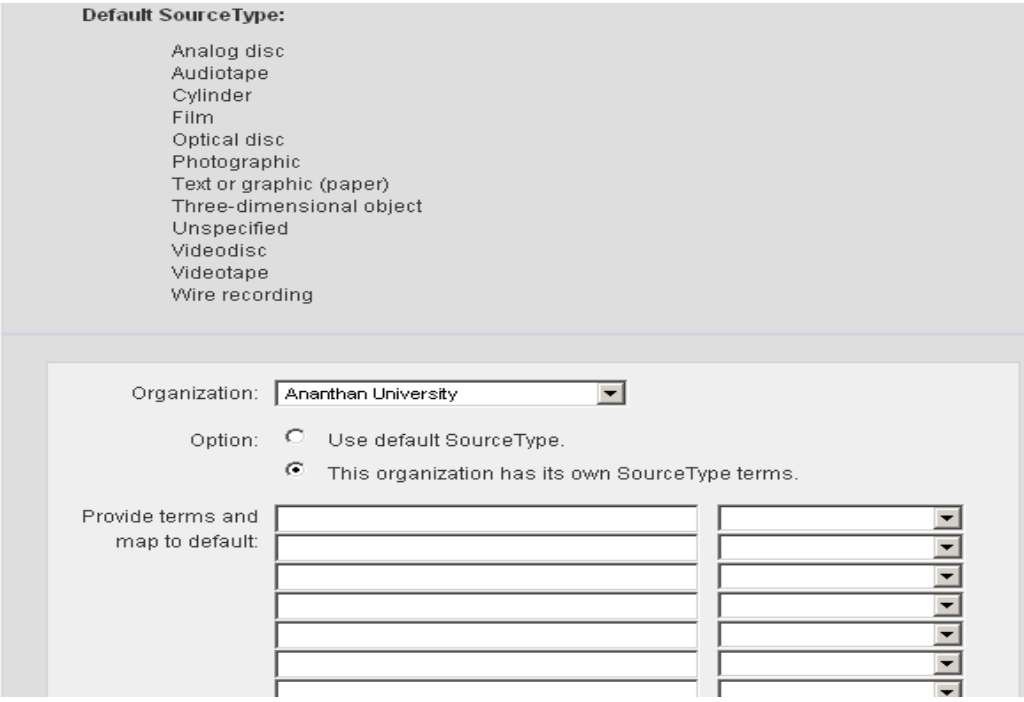


Figure 2.1.12: Source Type configuration screen 2

1.3) Controlled Vocabularies

This module has been integrated in the cataloging module. To add or edit controlled vocabularies , go to the metadata input forms as you normally would when entering metadata for collection or digital resources, select the dropdown box or radio button that you want to edit, choose ADD/EDIT TERMS. You will find detailed instructions in the OpenWMS User Manual.

1.4) Required Elements **(Figures 2.1.17 to 2.1.19)**

You may specify system-wide required elements for collection objects as well as resource objects based on your organization policies. The system will check for a value in each required elements. If a required element lacks a value, the system flags the metadata record with "M".

Follow the steps below to specify system-wide required elements.

a) Select ***Digital Object Workflow Management System*** from the main menu.
b) Select ***Configuration***.
c) Select ***Metadata Cataloging*** from the Main Configuration Screen.
d) Select ***Required Elements***.
e) Select ***Collection or Resource***.
f) Select ***Metadata Type*** (Note: Source and Technical apply to Resource only).
g) Click ***element name***. You will see the element listed under Specified Required Field Entry List. To remove an element from the required list, select the field name on that list and OK the prompt to remove the entry. Refer to the online data dictionary for element definitions.
h) Click ***Update***.
i) Repeat steps (e) – (h) for each metadata type.

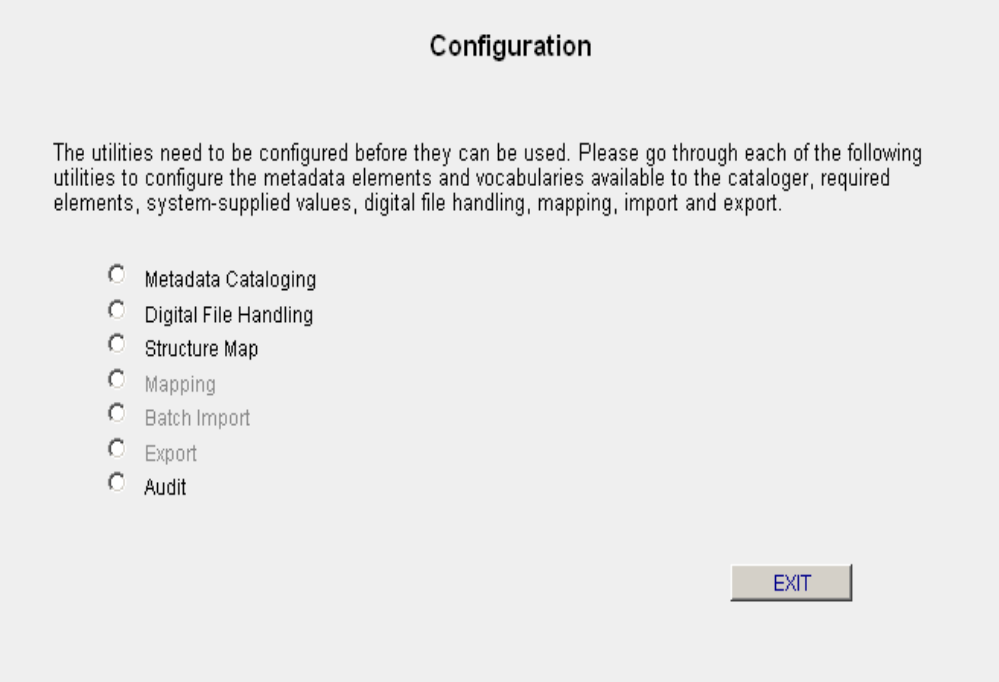

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT

Figure 2.1.17: Configuration main screen

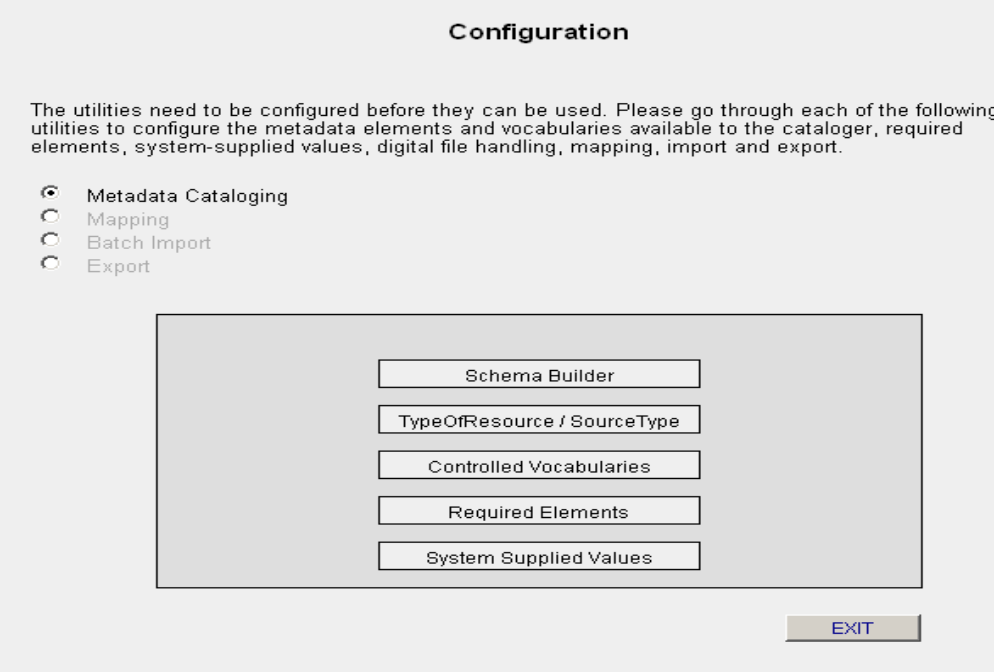

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Mapping
Batch Import
Export
Schema Builder
TypeOfResource / SourceType
Controlled Vocabularies
Required Elements
System Supplied Values
EXIT

Figure 2.1.18: Cataloging utility configuration screen

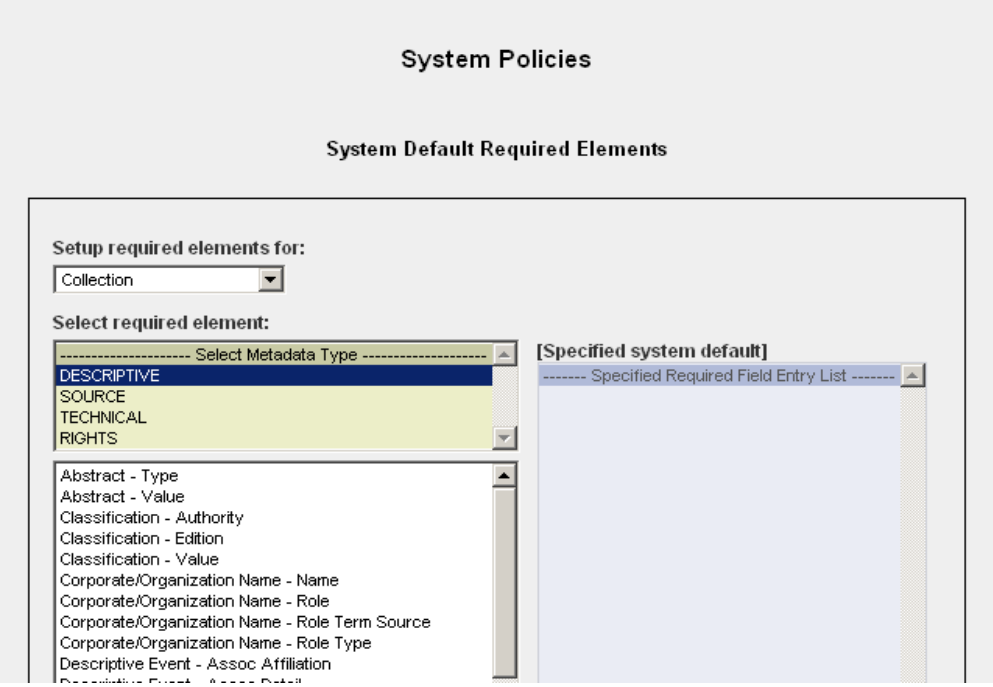


Figure 2.1.19: System default required elements screen

1.5) System Supplied Values

Not implemented in this version.

2) Digital File Handling (figures 2.1.20 –

The OpenWMS is delivered with very basic file handling policies but you may configure the acceptable file format policies based on your organization's need. The OpenWMS allows users to upload the original master file (e.g. TIFF) for preservation purposes, and associated derivative files (e.g. JPEG) for presentation purposes.

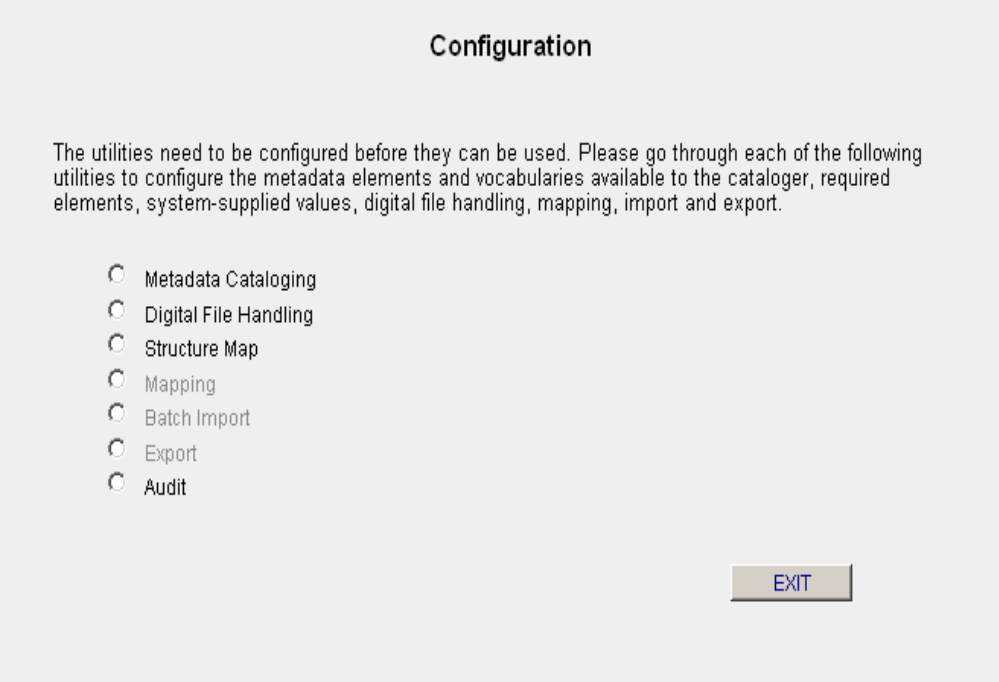
2.1) File name option

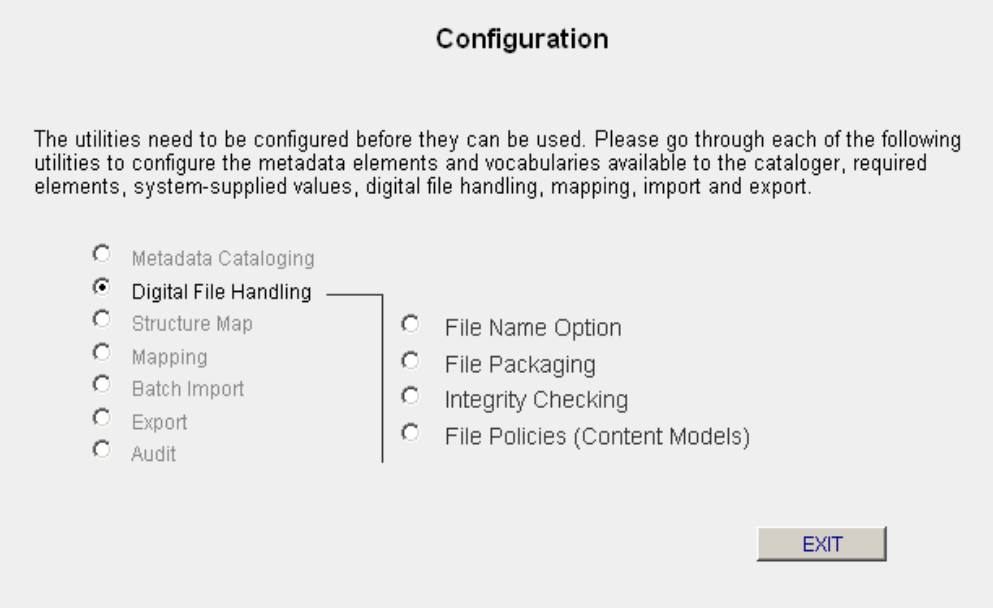
This option allows you to keep the original file name or to let the OpenWMS rename your file(s) during file upload process. Follow the steps below to configure file name option:

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***File Name Option.***
iii. Select one of the following options:

- To keep the file names unique within OpenWMS, select ***System Supplied.***
- To customize file name, select ***Specify customized file format.*** If you choose this option, you need to supply the name format. You may select the prefix from the pick list or enter free text.
- To keep the original file name, select ***Use Original file name provided by user.***

iv. Select ***Submit.***


Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT
Figure 2.1.20: Configuration main screen


Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
File Name Option
File Packaging
Integrity Checking
File Policies (Content Models)
EXIT
Figure 2.1.21: Digital File Handling configuration main screen

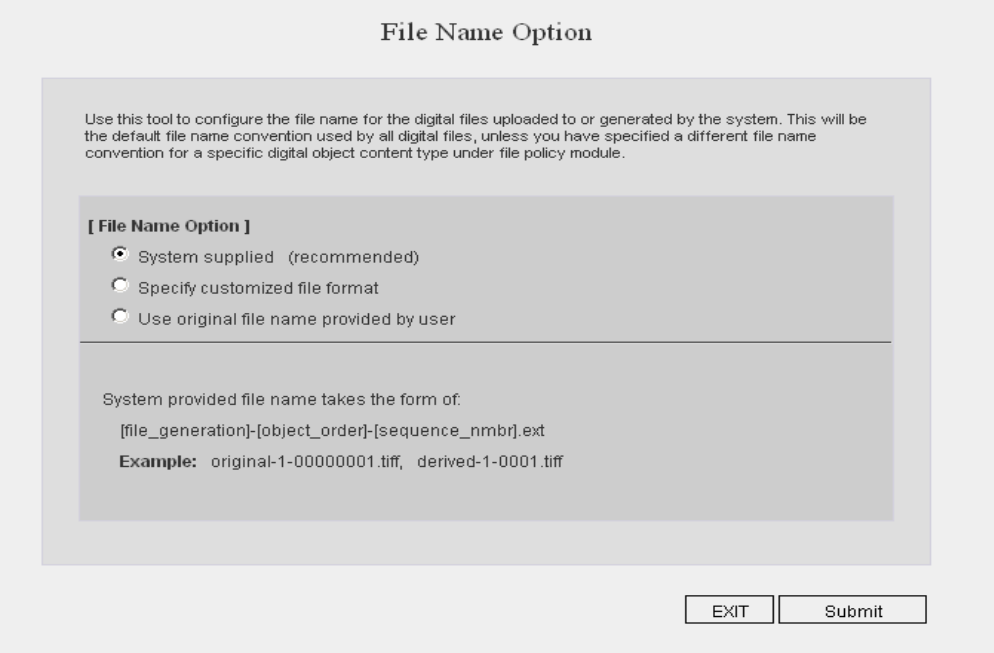

File Name Option
Use this tool to configure the file name for the digital files uploaded to or generated by the system. This will be the default file name convention used by all digital files, unless you have specified a different file name convention for a specific digital object content type under file policy module.
[File Name Option]
System supplied (recommended)
Specify customized file format
Use original file name provided by user
System provided file name takes the form of:
[file_generation]-[object_order]-[sequence_nmbr].ext
Example: original-1-00000001.tiff, derived-1-0001.tiff
EXIT
Submit

Figure 2.1.22: File Name Option screen

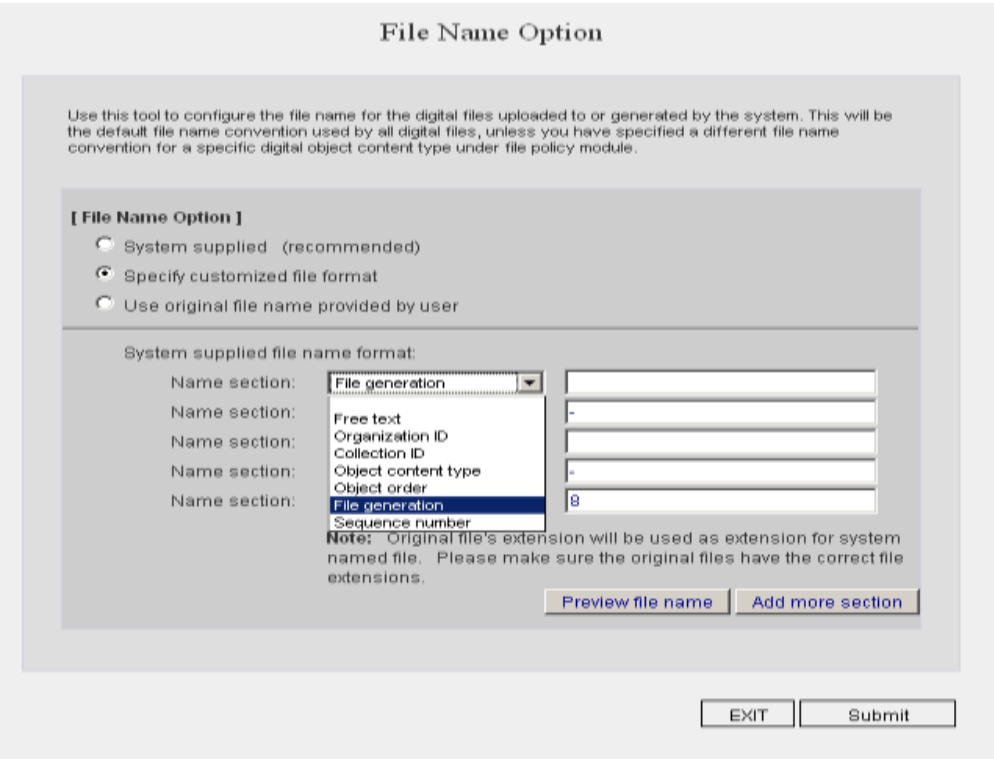

File Name Option
Use this tool to configure the file name for the digital files uploaded to or generated by the system. This will be the default file name convention used by all digital files, unless you have specified a different file name convention for a specific digital object content type under file policy module.
[File Name Option]
System supplied (recommended)
Specify customized file format
Use original file name provided by user
System supplied file name format:
Name section:
File generation
Free text
Organization ID
Collection ID
Object content type
Object order
File generation
Sequence number
Note: Original file's extension will be used as extension for system named file. Please make sure the original files have the correct file extensions.
Preview file name
Add more section
EXIT
Submit

Figure 2.1.23: File Name Option screen – customize file format

2.2) File packaging

This option allows you to choose whether to bundle all the archival master files into one package such as tar. The application supports tar as the default packaging method. If your organization chooses to use a different method code change is required.

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***File Packaging.***
iii. Select ***Yes*** to bundle all the archival files into one tar file. Otherwise, select ***No***.
iv. If you have selected "yes", select ***Tar*** as the Packaging Method.
v. Select ***System Default Software*** for Packaging Software Option.
vi. Click ***Submit.***

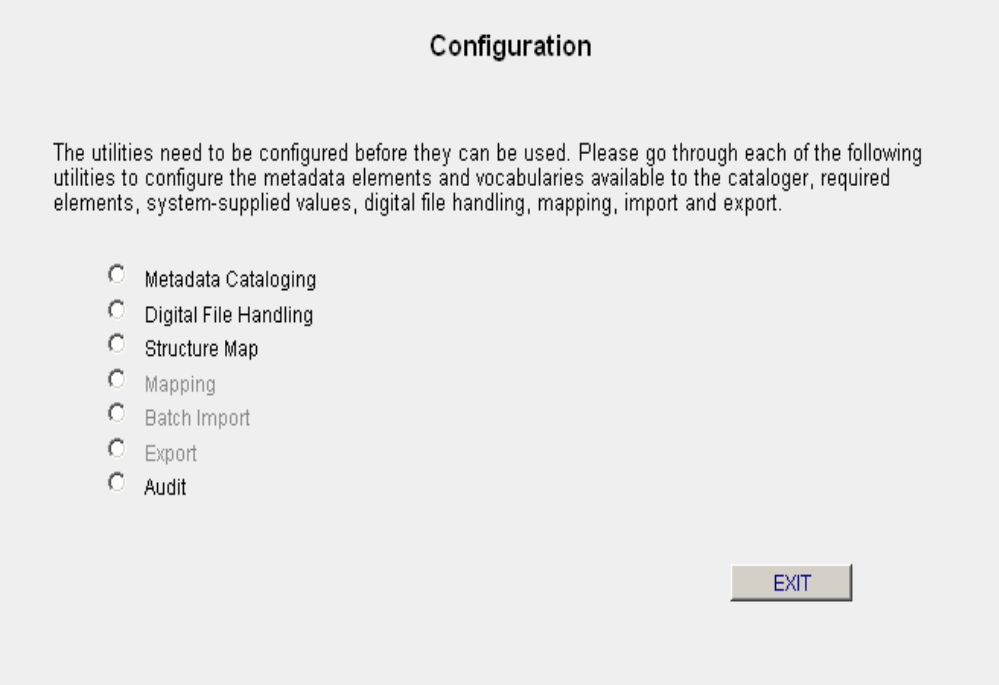

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT

Figure 2.1.24: Configuration main screen

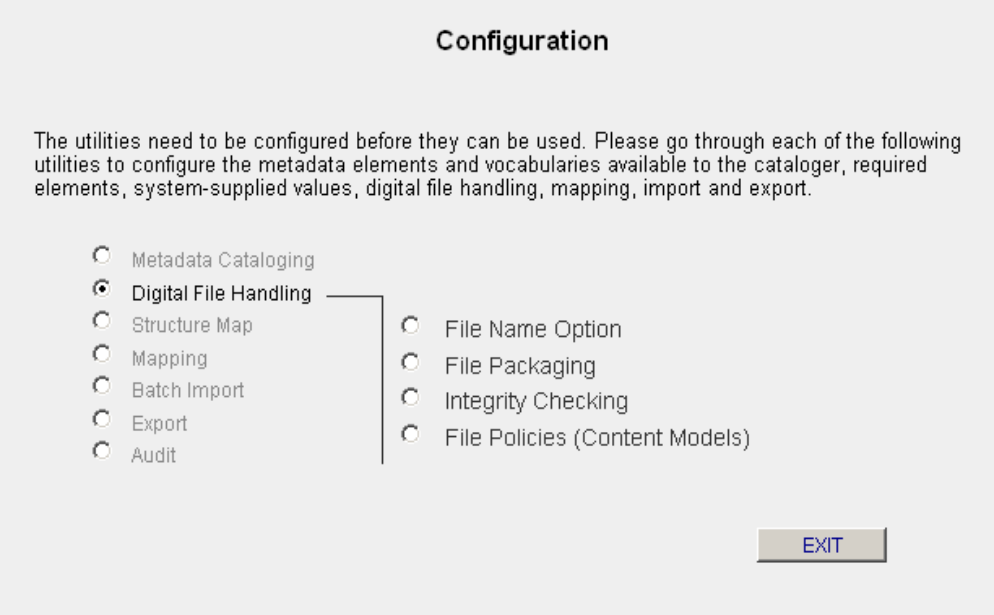

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
File Name Option
File Packaging
Integrity Checking
File Policies (Content Models)
EXIT

Figure 2.1.25: Digital File Handling configuration main screen

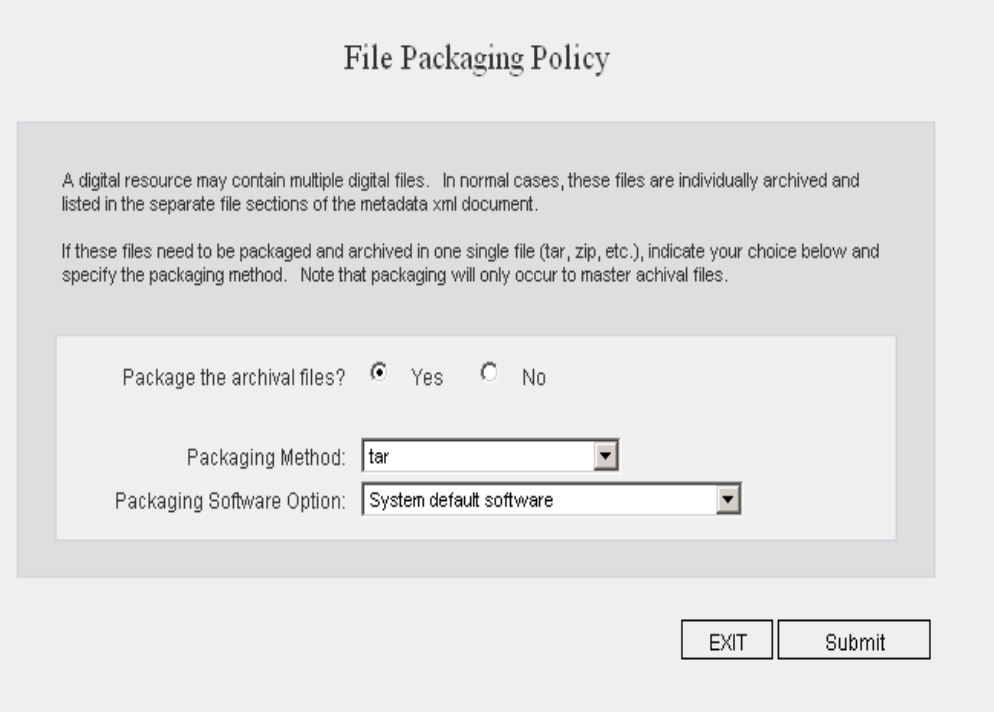

File Packaging Policy
A digital resource may contain multiple digital files. In normal cases, these files are individually archived and listed in the separate file sections of the metadata xml document.
If these files need to be packaged and archived in one single file (tar, zip, etc.), indicate your choice below and specify the packaging method. Note that packaging will only occur to master achival files.
Package the archival files? Yes No
Packaging Method: tar
Packaging Software Option: System default software
EXIT
Submit

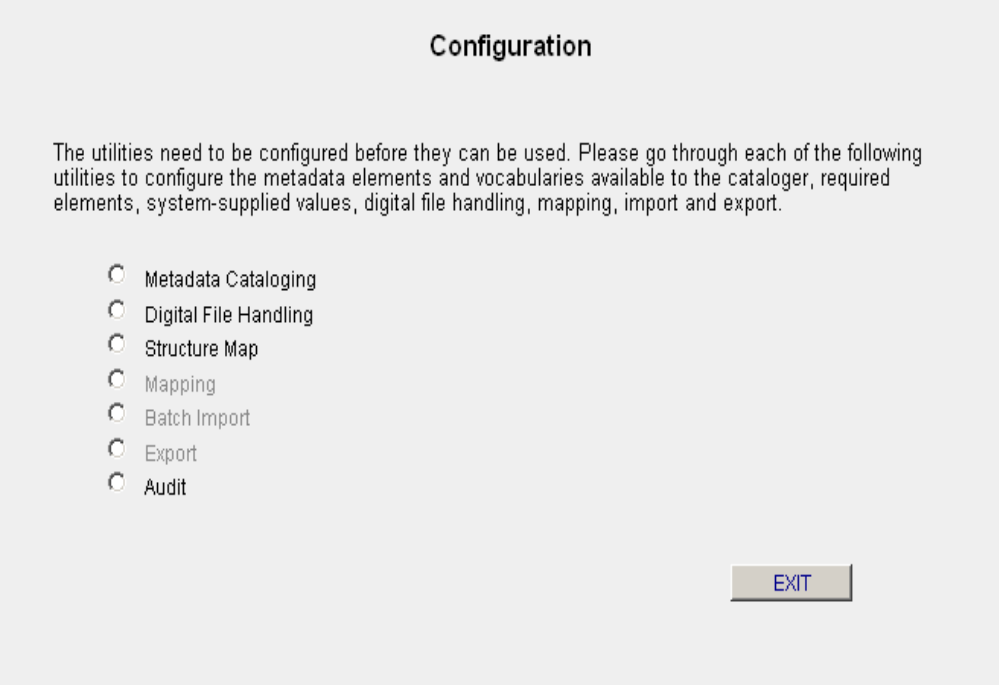
Figure 2.1.26: File Packaging Policy screen

2.3) Integrity checking

The OpenWMS has the capability to compute checksum for the original master file(s). The default method delivered in the current version is SHA1 checksum method. If your organization chooses to use a different method, code change is required.

*** Note: If you configure to package the archival master file(s) into one tar file, the checksum will be computed for the tar file otherwise, the checksum will be computed for individual file(s).

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***Integrity Checking.***
iii. Select ***SHA1*** for Checksum Method.
iv. Select ***System Default Software*** for Checksum Software Option.
v. Click ***Submit.***


Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT
Figure 2.1.27: Configuration main screen

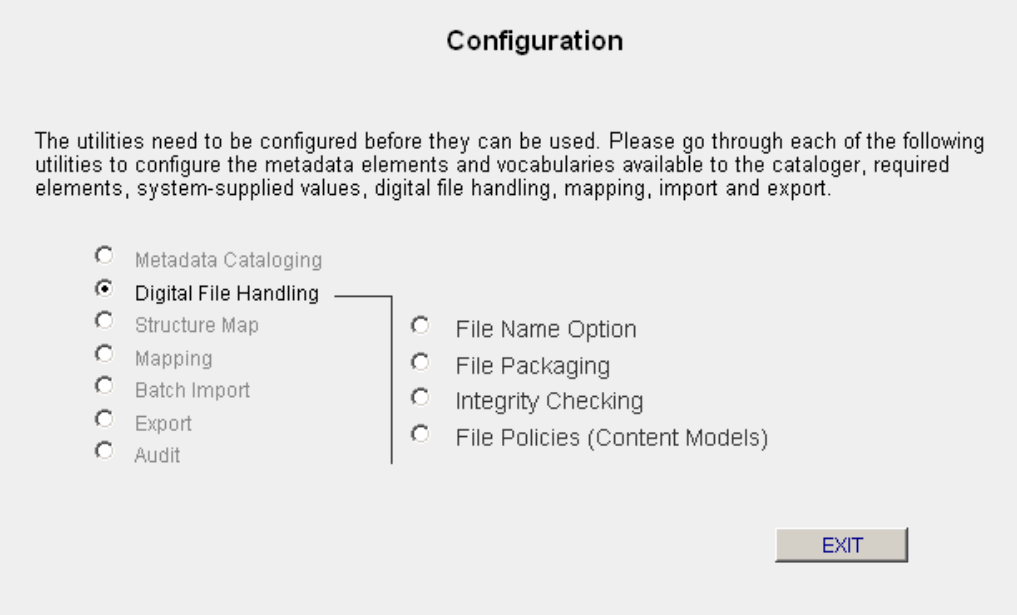

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
File Name Option
File Packaging
Integrity Checking
File Policies (Content Models)
EXIT

Figure 2.1.28: Digital File Handling configuration main screen

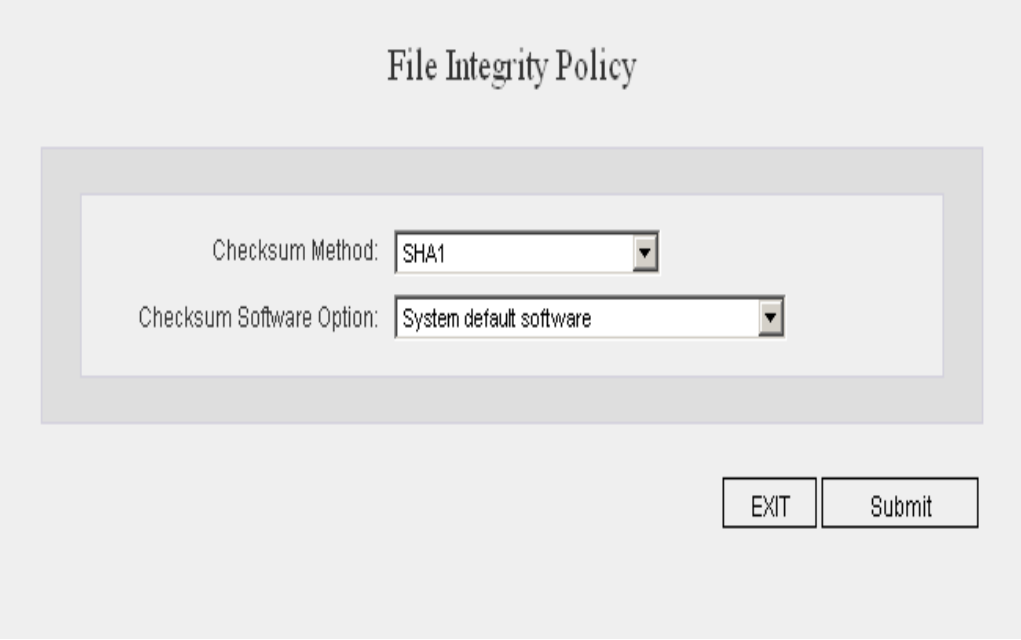


Figure 2.1.24: File Integrity Policy screen

2.4) File policies

This option allows you to configure the acceptable file format for original master file, presentation file, search xml file, and thumbnail for each digital object type (content model). The OpenWMS is delivered with basic default file policies for Photograph and Video. You may change or configure new file policies based on your organization's preservation/presentation policies. The following are some definitions of terms used within OpenWMS.

Definitions:

Content Model: A particular type of object. It ensures objects behave consistently within OpenWMS or a repository such as Fedora. The acceptable/required digital files for each resource object created in OpenWMS Is defined in the content model.

Examples: Photograph; Text; Video

Master or Original File: Preservation copy or archival copy of the digital file -- usually an uncompressed digital file. These are usually very large files. The primary objective of the master file is to provide an uncompressed file format that can be migrated when a new technology is not compatible with an old technology.

Examples: 600 DPI TIFF for Photograph and Text; WAV for Audio; AVI for Video.

Master Derivative or Orginal Derivative file: Another preservation or archival copy that is derived from the original or master file. An original uncompressed file format can be modified to improve display quality.

Examples: 600 DPI TIFF for Photograph and Text; WAV for Audio;AVI for Video.

Presentation File: Presentation copy or display copy of the digital file – usually a compressed digital file for fast download time. Also called as access copy.
Eamples: JPEG for Photograph; PDF for Text; Quick Time for Video.

Datastream: A digital file. It could be a master or original file (TIFF) or a presentation or access copy (JPEG).

SearchXML: An XML file of the text in a digital file for full text searching.

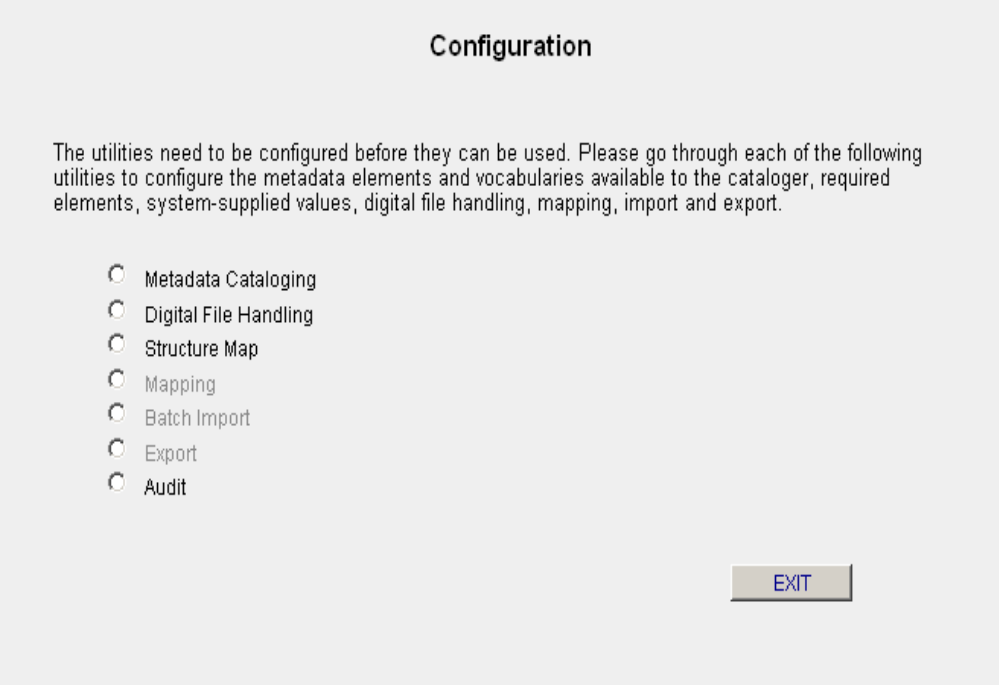
Thumbnail: A reduced-version of the presentation file – usually a reduced-version of the JPEG file for still image or a thumbnail from a clip for a video.

Example: You want to create file policies for book objects, and your organization decides to use TIFF as the preservation file format, and PDF as the presentation/display format. We need to create the following policies:

Content Model - Book
Master file format– TIFF
Presentation file format – PDF

Create Content Model: (figures 2.1.25 to 2.1.28)

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***File Policies (Content Models).***
iii. Select ***Digital Content Type.***
iv. Select ***Add/Edit Digital ObjectTypes.***
v. Enter ***Digital Object Type (ex. Book).***
vi. Select ***Object-File Relationship***. (Note: This concept is no longer used by OpenWMS and it will be disabled in the next release.)
vii. Select ***Resource Type*** **(ex. text).** Note that the values available may be different if you have configured to use different resource type in your organization.
viii. Select ***Create.***


Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT
Figure 2.1.25: Digital File Handling configuration main screen

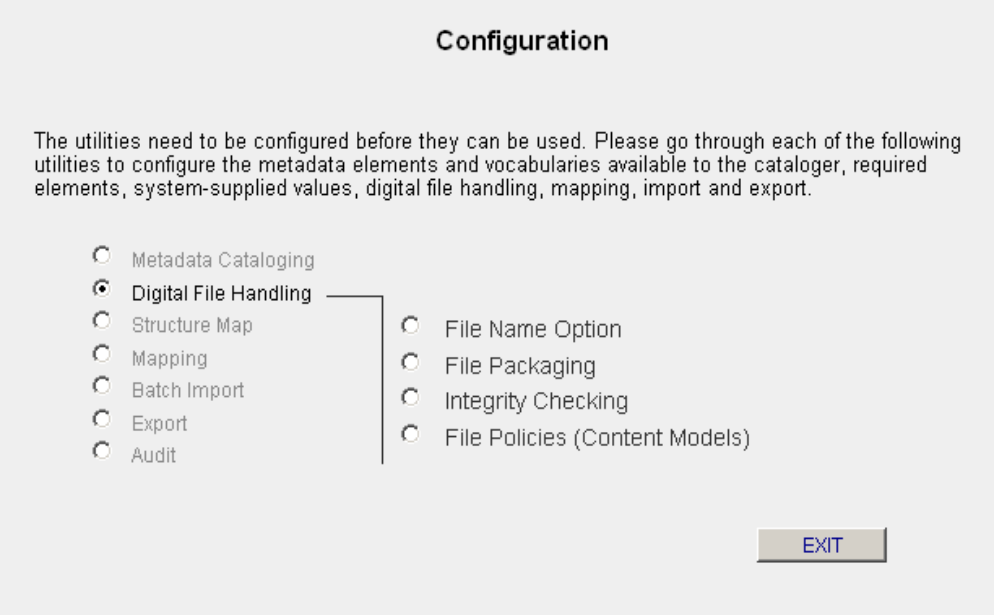

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
File Name Option
File Packaging
Integrity Checking
File Policies (Content Models)
EXIT

Figure 2.1.26: Digital File Handling configuration main screen

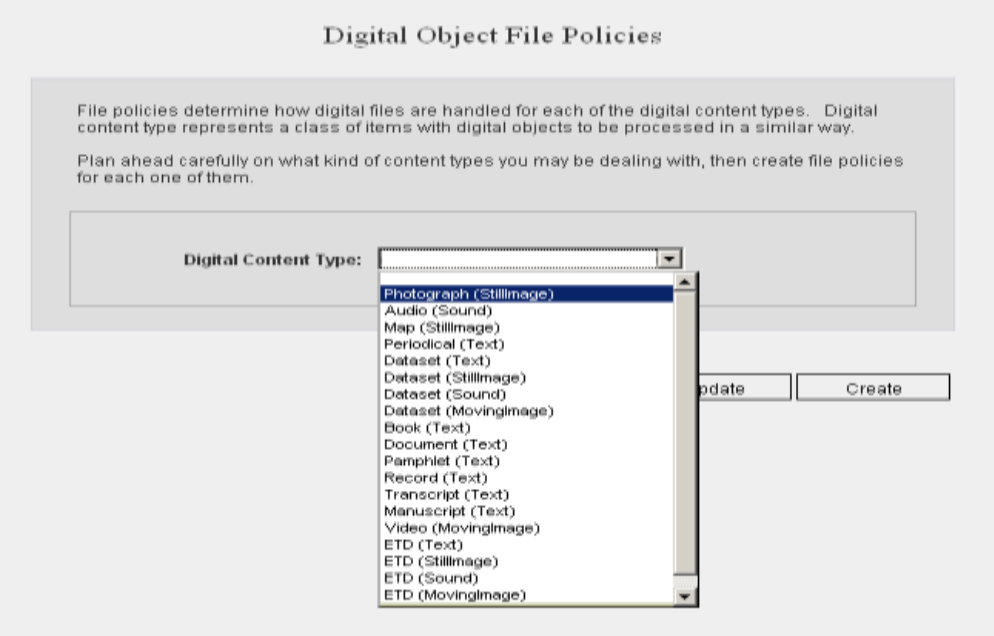

Digital Object File Policies
File policies determine how digital files are handled for each of the digital content types. Digital content type represents a class of items with digital objects to be processed in a similar way.
Plan ahead carefully on what kind of content types you may be dealing with, then create file policies for each one of them.
Digital Content Type:
Photograph (StillImage)
Audio (Sound)
Map (StillImage)
Periodical (Text)
Dataset (Text)
Dataset (StillImage)
Dataset (Sound)
Dataset (MovingImage)
Book (Text)
Document (Text)
Pamphlet (Text)
Record (Text)
Transcript (Text)
Manuscript (Text)
Video (MovingImage)
ETD (Text)
ETD (StillImage)
ETD (Sound)
ETD (MovingImage)
pdate
Create

Figure 2.1.27: Digital object file policies screen

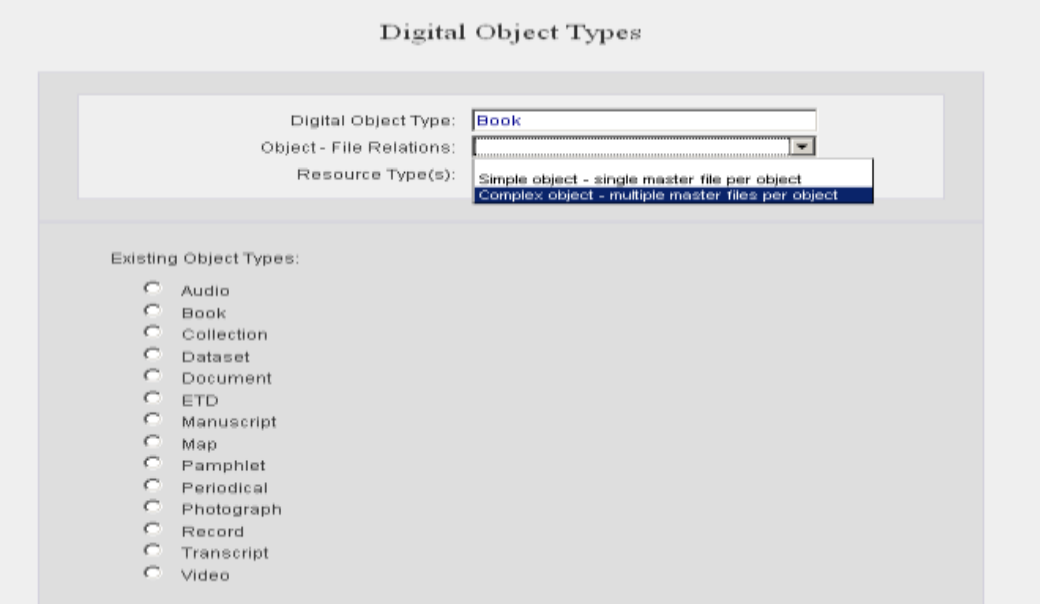


Figure 2.1.28: Digital Object types screen

Create File Policy for Master file:

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***File Policies (Content Models).***
iii. Select ***Digital Content Type.(Ex. Book)***
iv. Select ***Archival Master*** for Archive Type***.***
v. Select ***File Format. (Ex. TIFF)***
vi. Select ***Generation.***
- Select ***Original if the master file is not altered in any way.***
- Select ***Derived from original (e.g., cropped image)*** ff the file has been altered to improve the quality of the image. If you choose this option, it is recommended that you create a separate master file policy.

vii. Enter ***Datastream ID Prefix***. ***(Ex. TIFF).*** **Note: If multiple files are uploaded an integer value (TIFF1, TIFF2, TIFF3 etc.) will be added to this prefix.**

viii. Select ***File Required*****.**
- Select ***Required,*** if your organization policy is to preserve the object. This option is recommended. The OpenWMS validates this option when an object is created.
- Select ***Optional.*** If this option is selected, the OpenWMS does not validate when an object is created.
- Select **Decided by user.** If you are not sure of your organization policy, select this option. The user can decide at the time of object creation.

ix. Select ***Obtain Method.***
- Select ***Upload to the system.***
- Select ***Keep at an external location.*** This option is recommended for larger objects such videos and audios. The external location must be specified in the configuration file. This location must be on the same server where the application runs.

x. Select ***File Name Option.***

- Select ***Use system default option*** if you want the system to rename the files to system assigned unique file names. Ex. Orig-0001, orig-0002 for master files and pres-0001, pres-0002 for presentation files.
- Select ***Specify a different convention*** if you want to use a different file naming convention. **Note this option has not been fully tested yet.**
- Select ***Use original file names provided by user*** if you want to preserve the original file names. **Note this option has not been fully tested yet.**

xi. Select ***Create.***

Digital Object File Policies
File policies determine how digital files are handled for each of the digital content types. Digital content type represents a class of items with digital objects to be processed in a similar way.
Plan ahead carefully on what kind of content types you may be dealing with, then create file policies for each one of them.
Digital Content Type:
Book (Text)

Figure 2.1.29: Digital Object types screen

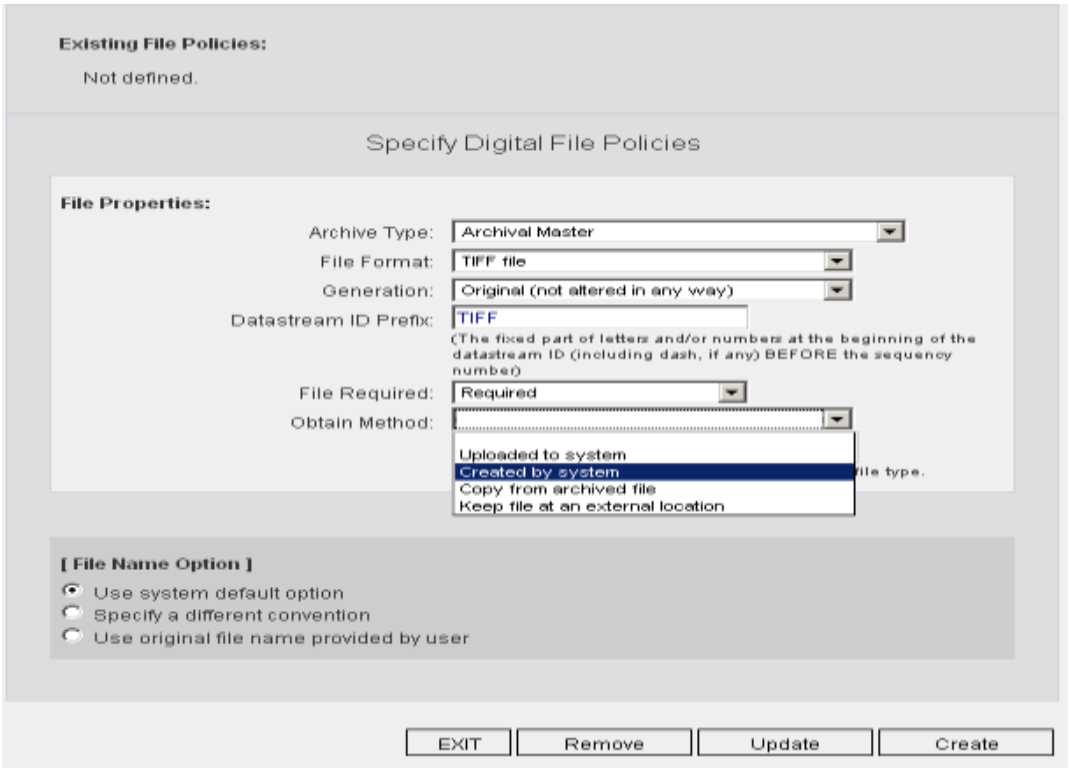


Figure 2.1.30: Digital Object types screen

Create File Policy for presentation file:

i. Select ***Digital File Handling*** from the Configuration main screen.
ii. Select ***File Policies (Content Models).***
iii. Select ***Digital Content Type.(Ex. Book)***
iv. Select ***Presentation (for web display)*** for Archive Type***.***
v. Select ***File Format. (Ex. PDF)***
vi. Select ***Generation.*** Master file could be an original that is not altered in any way or altered to improve the quality of the master file. If the file is altered you may want to preserve both masters.
vii. Enter ***Datastream ID Prefix***. ***(Ex. PDF).*** **Note: If multiple files are uploaded an integer value (PDF1, PDF2, PDF3 etc.) will be added to this prefix.**
viii. Select ***File Required*****.**

- Select ***Required,*** if your organization policy is to preserve the object. This option is recommended. The OpenWMS validates this option when an object is created.
- **S**elect ***Optional.*** If this option is selected, the OpenWMS does not validate when an object is created.
- Select **Decided by user.** If you are not sure of your organization policy, select this option. The user can decide at the time of object creation.

ix. Select ***Obtain Method.***

- Select ***Created by the system.*** The current version of the software supports JPEG, thumbnail and GIF images only. If you want to create other types of presentation file, code/software change is required. If you select this option you will be prompted with two more options:
    - Select ***System default software*** (Image MagicK) for JPEG, Thumbnail, and GIF formats. For other file formats select ***Non-system default software.*** **Note: You need to install the none-system default software and make necessary code changes.**
    - Select **Source File for System-generated.** Example: select master-original-tiff to create JPEG.
- Select ***Uploaded to system.*** Choose this option if you are configuring file policy for PDF, DJVU, MP3, MOV, and flash files.
- Select **Copy from an archival file**. This option is recommended if the master file and the presentation file format is the same. Example: PDF/A could be an archival file as well as a presentation file. If you have selected this option,
    - Specify ***Copy from this archived file.*** Example: master-original-pdf.

x. Select ***File Name Option.***

- Select ***Use system default option*** if you want the system to rename the files to system assigned unique file names. Ex. Orig-0001, orig-0002 for master files and pres-0001, pres-0002 for presentation files.
- Select ***Specify a different convention*** if you want to use a different file naming convention. **Note this option has not been fully tested yet.**
- Select ***Use original file names provided by user*** if you want to preserve the original file names. **Note this option has not been fully tested yet.**

xi. Select ***Create.***

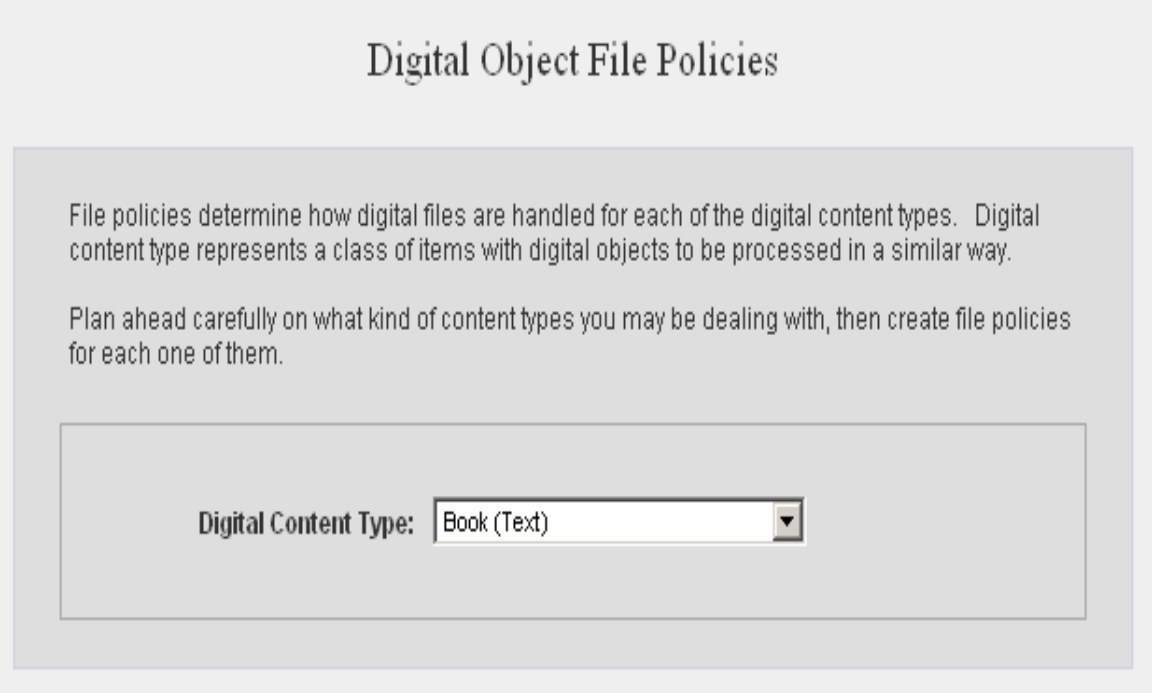

Digital Object File Policies
File policies determine how digital files are handled for each of the digital content types. Digital content type represents a class of items with digital objects to be processed in a similar way.
Plan ahead carefully on what kind of content types you may be dealing with, then create file policies for each one of them.
Digital Content Type:
Book (Text)

Figure 2.1.31: Digital Object types screen

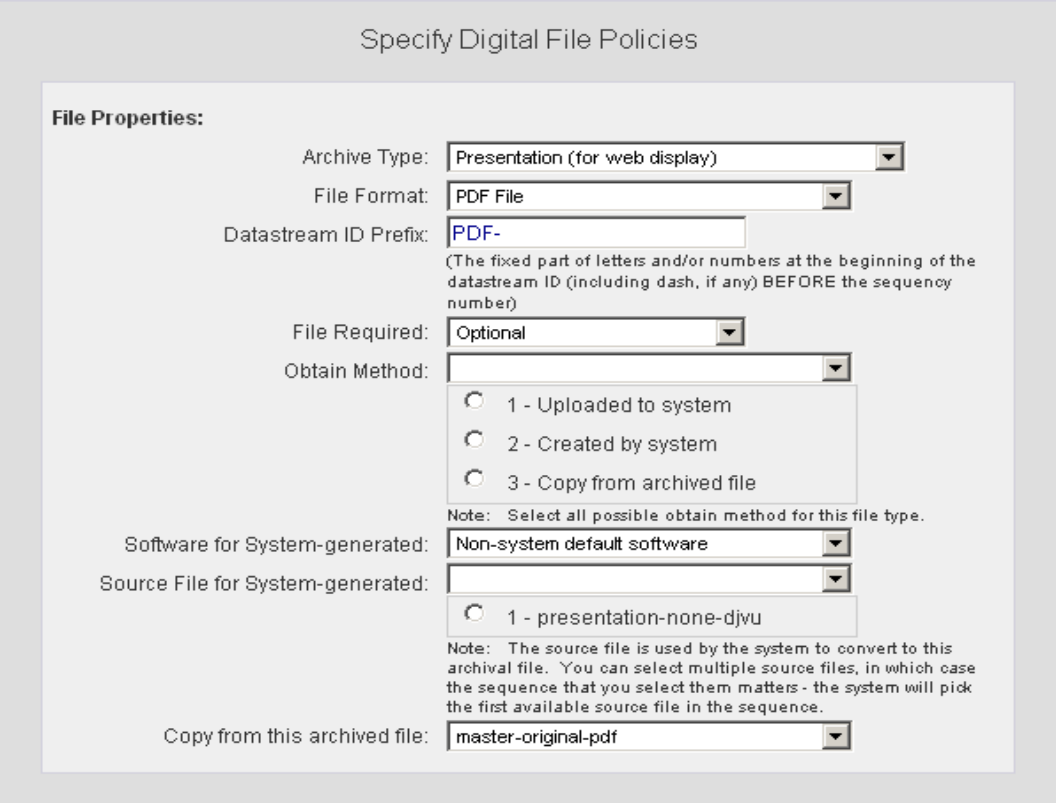

Specify Digital File Policies
File Properties:
Archive Type:
Presentation (for web display)
File Format:
PDF File
Datastream ID Prefix:
PDF-
(The fixed part of letters and/or numbers at the beginning of the datastream ID (including dash, if any) BEFORE the sequency number)
File Required:
Optional
Obtain Method:
1 - Uploaded to system
2 - Created by system
3 - Copy from archived file
Note: Select all possible obtain method for this file type.
Software for System-generated:
Non-system default software
Source File for System-generated:
1 - presentation-none-djvu
Note: The source file is used by the system to convert to this archival file. You can select multiple source files, in which case the sequence that you select them matters - the system will pick the first available source file in the sequence.
Copy from this archived file:
master-original-pdf

Figure 2.1.32: Specify file policy for presentation file screen

3) Structure Map

The structure map allows navigation points within a digital object. It organizes the digital content represented by the <file> elements in the METS <fileSec> into a coherent hierarchical structure. More than one <structMap> can be included in a METS document, so more than one method of organization is possible - e.g. physical, logical or a mixture of the two. The structural divisions in the map are represented by division ( ) elements, which can be nested to any depth to allow for very complex hierarchies.

The OpenWMS allows users to either use a default structure map or create a customized structure map. Example of a default structure map created by the OpenWMS:

```
<METS:fileGrp ID="DATASTREAMS">
    <METS:fileGrp ID="SMAP1" STATUS="">
     <METS:file ID="SMAP1.0" MIMETYPE="text/xml" CHECKSUM="48b08eb90cadc7b5789da5b27fef3a9717770c76"
CREATED="2009-08-10T12:17:50" ADMID="TECHNICAL1 RIGHTS1 DIGIPROV1 DIGIPROV2 DIGIPROV3 DIGIPROV4
DIGIPROV5 DIGIPROV6 " OWNERID="M" STATUS="A">
      <METS:FLocat ID="SMAP1.0.0" LOCTYPE="URL" OTHERLOCTYPE="" USE="" xlink:type="simple"
xlink:href="http://lefty64.scc-net.rutgers.edu/workarea/rucore00000001165/50541/smap/smap_document_050541.xml"
xlink:role="" xlink:arcrole="" xlink:title="ka test tech md: SMAP1" xlink:show="" xlink:actuate=""></METS:FLocat>
     </METS:file>
    </METS:fileGrp>
  </METS:fileGrp>
 </METS:fileSec>
```

Structure Map Policies

Configure the system to use default structure map, custom build structure map, or no structure map at all for each object content type.

Note that the default structure map for collection describes the collection hierarchy structure. For all the other object content types, the default structure map is merely an empty place holder. To build your customized structure map for each content type, a corresponding custom built software module needs to be supplied (see README file or talk to your system administrator for details).

Create structure map for each item? (•) Yes ( ) No

Where will structure map be placed?

(•) As a separate xml file (linked in the metadata).

( ) As an inline xml section of the metadata.

Specify how structure map is built for each object content type:

Object Content Type	Structure Map	
Collection	(•) Default	( ) Custom built structure map
Audio	( ) Default	(•) Custom built structure map
Book	( ) Default	(•) Custom built structure map
Dataset	( ) Default	(•) Custom built structure map
Document	( ) Default	(•) Custom built structure map
ETD	( ) Default	(•) Custom built structure map
Manuscript	( ) Default	(•) Custom built structure map
Map	( ) Default	(•) Custom built structure map
Pamphlet	( ) Default	(•) Custom built structure map
Periodical	( ) Default	(•) Custom built structure map
Photograph	( ) Default	(•) Custom built structure map
Record	( ) Default	(•) Custom built structure map
Transcript	( ) Default	(•) Custom built structure map
Video	( ) Default	(•) Custom built structure map

EXIT Submit

4) Mapping

Not implemented in this version.

5) Batch Import

Not implemented in this version.

6) Export

Not implemented in this version.

7) Audit

Configuring the audit options enable you to audit the user activities related to the handling of a specific digital item.

- Select ***Audit*** from the Configuration main screen.
- Select ***Yes*** to audit user activities, otherwise select ***No***.
- If you have selected Yes, select ***activities to be audited.***
- Select ***object types to be audited.***
- Select ***Yes*** to create digital provenance metadata based on the audit information***.*** Selecting Yes will add the name of the user, the role, email address, and the creation date in the XML.

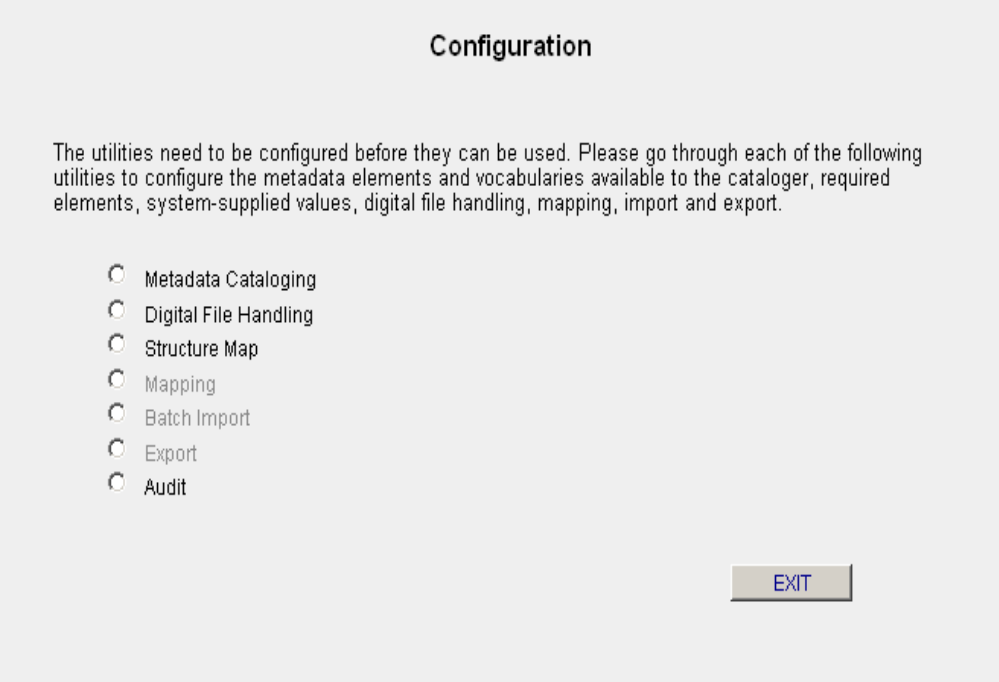
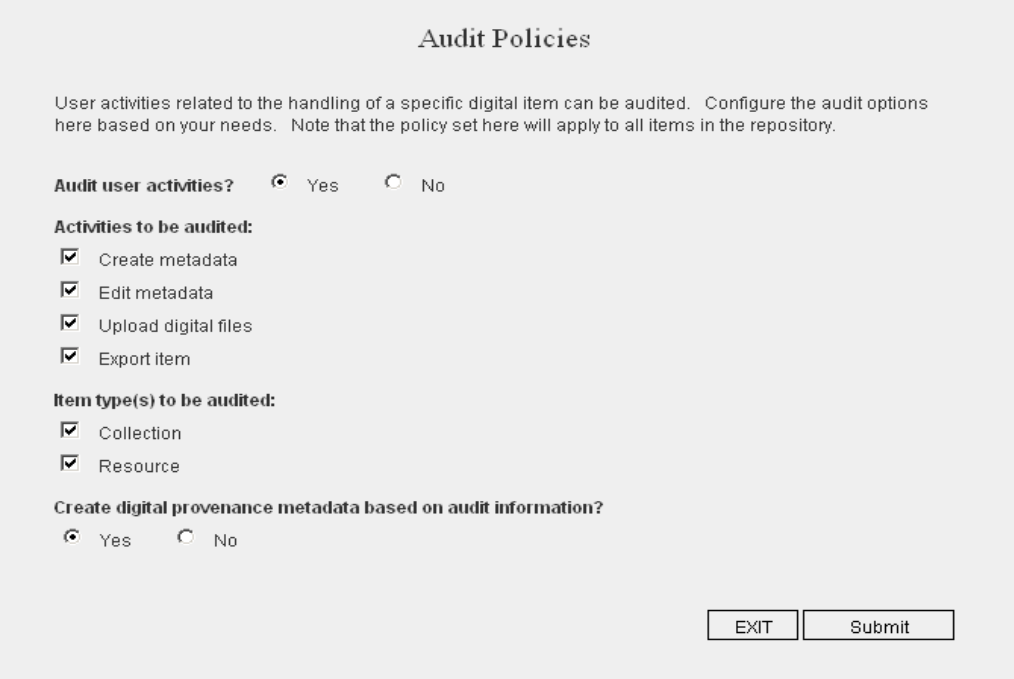

Configuration
The utilities need to be configured before they can be used. Please go through each of the following utilities to configure the metadata elements and vocabularies available to the cataloger, required elements, system-supplied values, digital file handling, mapping, import and export.
Metadata Cataloging
Digital File Handling
Structure Map
Mapping
Batch Import
Export
Audit
EXIT

Figure 7.1.: Configuration main screen


Audit Policies
User activities related to the handling of a specific digital item can be audited. Configure the audit options here based on your needs. Note that the policy set here will apply to all items in the repository.
Audit user activities? Yes No
Activities to be audited:
Create metadata
Edit metadata
Upload digital files
Export item
Item type(s) to be audited:
Collection
Resource
Create digital provenance metadata based on audit information?
Yes No
EXIT
Submit